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GENETIC ASPECTS OF GROOMING, A SOCIALLY IMPORTANT PRIMATE BEHAVIOR PATTERN*¹

From the Laboratories of Comparative Psychobiology of Yale University

ROBERT M. YERKES

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¹The term "grooming" is taken from Zuckerman (7). Although it does not fully satisfy the present need, it is more nearly adequate descriptively than any other single word in our language.

I. DEFINITION, BY DESCRIPTION, OF GROOMING AS TYPIFIED IN CHIMPANZEE

Grooming is used in this report to designate a pattern of social behavior whose essential features are visual examination, search and manipulation of the skin and hair of a companion with fingers and lips, removal of dirt, dandruff, scabs, parasites, and other extraneous materials, and their conveyance to the mouth of the groomer, whose lips, tongue, and jaws meanwhile may have been in motion, with sound production, as if in anticipation of something to be swallowed. Commonly, swallowing ensues, if the object is not disagreeable. Such behavior is conspicuous in chimpanzee, which for purposes of comparison will be used in this report as type. Such familiar expressions as flea-picking, hair-dressing, skin-treatment, toilet-making, frequently are used to refer to forms or aspects of the pattern of primate behavior which has been described. Auto-grooming, it should be remarked, is exhibited by many vertebrates, but throughout this report the term will be used consistently to designate a form of social behavior.

II. STATUS OF OUR KNOWLEDGE OF THE PHENOMENON

Probably because it has been either repulsive or meaningless and therefore insignificant to most observers, the study of grooming in the primates has been neglected. The literature contains few references to it which are other than casual, and no adequate description of the behavior for any type of primate was available when this investigation was undertaken. In preparation for our general account of anthropoid life² Mrs. Yerkes and I searched diligently for pertinent materials. With a single exception we found no noteworthy observations on grooming in the great apes. The exception is Köhler's (2, pp. 320-323) descriptive and interpretative account of "skin treatment" in the chimpanzee. One must assume, from this author's penetrating statements, that he observed more than he reported, since what he has written makes insights more impressive by far than facts. Köhler evidently considers skin treatment of first-rate biological importance.

Of flea-picking, which, however, may more fittingly be called grooming, because oftener than not parasites are lacking, Watson (5, p. 178) writes as follows with reference to the monkey *Macacus*

²See list of references at end of report.

rhesus: "I have found it possible to instigate Jimmie to perform one rather interesting instinctive act: Flea-catching, regardless of what the sociologist may have to say, is the most fundamental and basal form of social intercourse between *rhesus* monkeys! The act is well known. As the monkey works over the body of his companion with his paws, he smacks his lips together continually and occasionally brings one paw to the mouth. This smacking sound is the invariable accompaniment of the act."

It is strange that this investigator, in the absence of definite evidence, should have considered grooming "instinctive." Possibly he may be correct!

By far the most important contribution of fact from personal observation is that of Zuckerman (7) for the baboon. As indicated by his book on the social life of monkeys and apes, this observer possesses, in addition to detailed and relatively accurate knowledge of the behavior pattern in point, insights which lead him to believe that in baboons grooming is of fundamental importance.

For grooming in infrahuman primates no other references of sufficient importance to justify mention have been discovered. As to the literature on human activities identical with or suggestive of grooming, mention may more appropriately be made in subsequent paragraphs.

III. HISTORY AND OBJECTIVES OF PRESENT INQUIRY

Although for several years I have accumulated miscellaneous observations on grooming in chimpanzees, only within the last two years have the facts become sufficiently meaningful to enable me to formulate a working hypothesis and to pursue systematic investigation of the subject with lively interest and definite purpose.

The hypothesis which I am seeking to test is that grooming, as typified by chimpanzee, represents an important pattern of primate social response from which have evolved varied and highly significant kinds of social service. Certain genetic implications of this hypothesis are evident. If it is essentially correct, grooming has a phyletic history, significant stages of which may be exhibited by existing types of primate; and in the individual it must be structurally conditioned, however much modified by subsequent experience. In this connection, the following specific questions may serve to indicate the directions of inquiry.

Are forms of grooming, essentially like that in chimpanzee, exhibited by widely diverse types of primate, including man? What

are the evidences of grooming in man? Is the behavior pattern primarily inherited or acquired, natural or cultural? To what extent is the activity modifiable? Are anthropologists correct in considering such human activities as delousing as cultural phenomena? Is grooming of conspicuous importance in the life of such primates as exhibit it? May it properly be considered a basic pattern of social behavior which stands as origin of social service, and therefore represents a significant stage in the process of primate socialization? Is it probable that such human activities, of the social-service variety, as hair-dressing, nursing, medical and surgical ministrations, are genetically related to anthropoid grooming?

Stimulated by the information in my possession and by such speculation and surmise as are suggested by the questions which have been formulated, I extended my investigation from chimpanzee to the order primate. There resulted promptly an increase of information and understanding which appeared to justify the presentation of preliminary report. The materials under consideration fall into four categories: phylogenesis, ontogenesis, affective values and relations, and rôle in socialization. What facts I have thus far been able to assemble concerning the evolution and development of this behavior pattern in primates, its affective accompaniments and values, and its possible place in the socialization of the primates, will now be presented summarily.

In explanation of the nature and form of this report it should be stated emphatically that my primary intent is to present a hypothesis and to exhibit informational needs and research opportunities, for obviously I am nearer the beginning than the end of my self-appointed task. Were I to withhold publication until I shall have gathered all information from varied sources necessary to confirm or correct my tentative hypothesis and to establish or destroy my insights, years probably would elapse. I have decided that the most effective way to extend knowledge of the subject is to publish a preliminary report which may acquaint investigators in diverse fields of science and with varying training, resources, and observational opportunities, with the problems of grooming, enlist their interest, and prompt them to make contribution of fact.

IV. PHYLOGENY: GROOMING IN LEMUR, MONKEY, APE, AND MAN

Grooming, even as social activity, is not restricted to the primates, although in certain of the latter it appears to be far more complex, frequently exhibited, and highly socialized than in other types of

vertebrate. Many mammals exhibit, especially toward their young, analogous forms of response. The cow, mare, bitch, cat, may lick offspring, companion, or self. As several features of the typical primate pattern are lacking, it seems doubtful whether this response is identical with grooming in chimpanzee. That tongue, lips, and teeth are used instead of the extremities, as in the primates, of course requires no comment. The significant contrast between primates and other mammals would seem to lie in the constitution of the pattern itself and its degree of socialization. The latter is greatly enhanced in the primates, and within that order markedly from prosimian to man.

From an unpublished manuscript of Doctor C. Ray Carpenter the following pertinent observation on coatis on Barro Colorado Island, Canal Zone, is quoted: "The following observations were made on a male and female animal. These two animals were observed during periodic fighting to make vicious movements and vocalizations. The female behaved 'as if' she were repulsing the advances of the male. Suddenly the quality of the behavior changed and the male began to pick through the hair of the female in the lateral thoracic region. The motor activity was carried out with the right front foot and the long nose and teeth."

With important variations, forms of grooming are exhibited by many types of primate. In the prosimian such behavior has not been observed by me, and I have found no authoritative published records. In a personal letter Doctor S. Zuckerman states: "I have seen it exhibited by almost every primate in the London Zoological Gardens, except the nocturnal Prosimiae. . . . The picking behavior of lemurs is altogether different from that of other primates. The animals scratch themselves with hands and feet, but I have never seen them using their fingers in grooming. . . . Usually each animal cleans its own fur, but occasionally one will lick another." This description suggests that in the Prosimiae the mutual care of coat and skin is transitional between that of such mammals as rodents and carnivores and that of monkeys as described below.

As is widely known, flea-picking, inaptly so-called, is conspicuous in monkeys. Present knowledge points to the generalization that the behavior occurs more commonly and is more definitely socialized in the Old World (catarrhine) than in the New World (platyrrhine) monkeys.

Information concerning grooming in the New World types of

monkey is meager indeed. Doctor Carpenter, whom I am again permitted to quote from an unpublished manuscript, has described the grooming of a rat by a marmoset with which it happened to be caged. "The pattern of activity consisted of the marmoset carefully parting the hairs on the back of the rat with one hand while it searched with the other; frequently the teeth were brought into play. During the process typical marmoset chatterings occurred. The activity was definitely directed and energetically executed."

For the "howler" (*Alouatta palliata inconsonans*), as observed by him on Barro Colorado Island, Doctor Carpenter reports high frequency of self-grooming and relative infrequency of social grooming. "The animals may commonly be observed scratching themselves, picking splinters or briars from their coat, and fighting flies. Grooming of one animal by another is extremely rare. I have observed only one instance and this consisted of a mother picking through the hair of her young as it lay before her on a limb. I was unable to detect vocalization or other sound."

Grooming in the white-faced monkey (*Cebus capucinus*), according to Doctor Carpenter, contrasts strikingly with that in the howler, for in the former the activity is highly social. "Grooming may be observed at times as the dominant activity of a band of white-faces; especially is this true after rainfall. Then almost all the animals of a band may be observed chattering and grooming."

For the spider monkey (*Ateles geoffroyi*, Kuhl), the same observer states that social grooming is frequently exhibited, although not as frequently as in the capuchins. The activity is essentially similar to that in chimpanzee, but there appears to be little vocalization or other production of sound in connection with it.

For Old World types of monkey the best available account of grooming is that of Zuckerman (7) for the Hamadryas baboon. This African primate has been observed, both in nature and captivity, to exhibit characteristic forms of skin treatment. The activity is primarily social, according to Doctor Zuckerman, and from his description one may infer that it is functionally identical with that of chimpanzee. Conspicuous are hand and finger movements and quick movements of lips, jaws, and tongue, with production of sound by the lips.

The literature contains many references to grooming in macacus monkeys. Reference has already been made to the observations of Watson (5). In this highly organized type of Old World primate

the activity is exceedingly frequent, obviously important as aspect of social relation, and identical in general features with the grooming of chimpanzee as previously described.

Such scanty information as is available suggests that gibbon and siamang, which in many respects are midway between the higher monkey types and the great apes, are relatively little given to mutual grooming. I have had little opportunity to observe these animals in company with their fellows. The questioning of keepers in zoölogical gardens has confirmed the statement just made, and from a letter from Doctor Zuckerman I am permitted to quote this pertinent statement: "The gibbons are very perfunctory in their toilet [in captivity] . . . but they exhibit both individual and mutual grooming. In this respect the siamang is the same. . . . I cannot recollect having noticed gibbons making mouth movements as they pick the fur. . . ."

One may not infer from our present knowledge of grooming in gibbon and siamang that it is more complex and highly socialized in them than in lower types of monkey or less so than in chimpanzee. Quite obviously, more detailed, accurate information is needed.

Of the three existing types of great ape—orang-outan, gorilla, and chimpanzee—only one, chimpanzee, has been at all systematically and carefully observed with respect to grooming. For it, over a period of years and under very favorable conditions, I have accumulated abundant data. By contrast, my observation of orang-outan and gorilla is limited to a few individuals, oftener isolated than in the company of their kind. In orang-outan the use of lips and teeth appears more important and that of fingers relatively less so than in chimpanzee. In gorilla, systematic searching and picking with fingers or lips have not been reported. Mrs. Belle J. Benchley, Manager of the San Diego Zoological Park, reports for the mountain gorilla (*Gorilla beringei*) a single instance in which one individual was observed to search the hair of another. The motion was more like combing with the fingers than like the skin treatment typical of macacus monkey or chimpanzee. The animal was not seen to pick up anything with the fingers or to carry them to the mouth, nor was sound production reported.

Whereas grooming as social behavior is very frequent in chimpanzee and I have observed it hundreds of times, in orang-outan I have never seen other than casual scratching, mouthing, or picking of a companion, and in gorilla not even this approach to social grooming. My tentative conclusion, from personal experience, checked

against the almost negligible contribution of the scientific literature and the oral testimony of several other observers, is that this behavior pattern probably is much more highly developed and more often exhibited as social response in chimpanzee than in any other existing great ape.

This hasty survey of the occurrence of grooming in the order primate from prosimian to ape may be summarized thus: Grooming, as social activity, is strikingly exhibited by many types of monkey and by chimpanzee. It occurs less frequently and in less complex form in various other primates. In the prosimian it appears more closely to resemble the skin care or treatment observed in other mammalia than it does that of monkeys. Whether or not genetic relationship exists among these several varieties of grooming, it is indicated that the pattern increases both in complexity and in social significance between prosimian and anthropoid ape. Therefore it is of peculiar interest and importance for phylogenetic theory to discover whether the pattern, or anything functionally analogous to it, is exhibited by man. To this inquiry we may now address ourselves.

On the assumption that civilization might naturally be expected to inhibit grooming as social activity, I have looked particularly to relatively uninhibited stages and conditions of human life for identifiable manifestations of grooming. Mental deficiency, psychopathic condition, normal infancy, and relatively primitive cultural status would appear to be favorable.

Thus far, neither in mental defectives nor in psychopathic subjects have unmistakable evidences of social grooming identifiable with that of chimpanzee or monkey been obtained. For the human infant, under one year of age, there are certain observations indicative of strong interest in skin excrescences, scabs, or wounds on fellow-beings, and it is a matter of common knowledge that the normal adult of cultural races often experiences impulsion towards manipulation of the hair and skin of intimates when unusual conditions, such as black-heads, pimples, abrasions, and minor sores, appear. In the normal infant this impulsion tends to gain expression, whereas more frequently in the adult it is inhibited or its expression is disguised.

My initial search for information concerning grooming in nature-folk yielded only negative results. Subsequently I was led, by the helpful suggestion and advice of anthropological colleagues,³ to the

³Especially I am indebted to Miss Helen H. Roberts for advice, suggestions, and valuable references to published and unpublished observations.

discovery that "lousing" or "delousing" possibly stands as the human counterpart of grooming.

Delousing is mentioned more or less casually by many writers, but by no one to my knowledge has it been fully and carefully described. Quite evidently it has been regarded, with mixed amusement and disgust, as an odd and revolting practice devoid of scientific interest and importance. Doctor A. L. Kroeber has written me: "It is exceedingly widespread as a cultural phenomenon in primitive life, especially louse-eating. I think it is always accompanied by pleasant affects. All American Indians, so far as I know, follow the practice. It is also a motif that is common, with the same affective associations, in the mythology of all continents."

In the following description I shall attempt to assemble the essential features of delousing as they appear in the relevant anthropological literature. The hair of a companion, irrespective of sex, is examined visually, and with the aid of the fingers, for parasites and other foreign objects. When a parasite is found it usually is picked up and either popped with the finger nails, and thereupon carried to the mouth and swallowed, or instead crushed by the teeth before swallowing. Anticipatory lip and jaw movements, with production of mouth sounds, so conspicuous in chimpanzee, have not been reported for man. More likely this indicates lack of careful observation than the absence of these features of the anthropoid grooming pattern.

The following from Malinowski (3, p. 327) is typical of the anthropological references to delousing among primitive peoples. Of the Trobrianders this author writes: "They inspect each other's hair for lice and eat them—a practice disgusting to us and ill associated with love-making, but to the natives a natural and pleasant occupation between two who are fond of each other, and a favourite pastime with children."

The most comprehensive and illuminating statement at my command is from a personal letter by Mr. J. Frank Stimson:

"(1) Searching for, and eating, lice is common throughout Polynesia. Where contact between Europeans and natives is close (as in Tahiti), the practice is avoided in the presence of the former, for the native realizes that it is disapproved. From my own observation I should say that the carrying to the mouth of loose bits of skin, dandruff, etc., is rare; but the lice are invariably placed between the teeth, nipped, and swallowed; or 'popped' by the nails.

"(2) The practice occurs between two individuals not necessarily of opposite sex. It is not practiced between strangers, but—while it is *usually* practiced between members of the same family—it may occur between friends, not necessarily very intimate, nor need the friendship be of long

standing. I am of the opinion, without wishing to be too positive, that nipping between the teeth is more common between close relatives, and popping between the finger-nails is more common between friends not of the same blood.

"(3) I have never seen application of the lips to the skin. Nor have I noticed jaw and lip movements except such as are necessary to destroy the insect and to swallow it.

"(4) The purpose would seem to be two-fold: to rid the infested person of the parasite while affording a certain sensory pleasure; and to afford the 'picker' a certain pleasure in 'popping' the lice; the person 'picked' (deloused) is, probably, felt to be put under a certain slight obligation. Swallowing would seem to be merely the easiest way of disposing of the insect."

Although at first one might naturally, and perhaps fairly, question the identification of human delousing with primate grooming, the evidence in favor of this is cumulative, and one may state, tentatively, that grooming is exhibited by man under certain favorable conditions and in form and relationship strikingly suggestive of those exhibited by chimpanzee and many types of monkey. This, it is true, is far enough from establishing phylogenetic relationship, for even although essentially similar patterns of grooming, complex and high socialized, are manifested in the various families and genera of existing primates, they may be genetically unrelated responses to essentially similar environmental situations and requirements. Or, on the other hand, it may very well be that, even though genetic relationship exists, the present types of primate do not represent the direct line of human descent. In view of these considerations, the following summary hypothetical statement may seem rash.

"Flea-picking" in monkey, "grooming" in chimpanzee, "delousing" in man, are functionally identical patterns of response. They are complex expressions of the visual acuity and manual skill which are peculiar to the primates. They may well be basically natural or inherited and only secondarily cultural; but in either event they are biologically important as conditioning comfort and health, highly socialized, strongly motivated, and accompanied by marked positive affects. The student of phylogenesis, with special interest in the evolution of human social service, may very well suspect that cultural developments and transformations of the variously named forms of grooming in infra-human primates have given origin to the tonsorial artistry, nursing, surgery, and other related social services of man.

V. ONTOGENY: GROOMING IN INDIVIDUAL DEVELOPMENT

Concerning the history of grooming in the individual primate nothing has been discovered in the scientific literature, and, with the exception indicated below, I have had no opportunity to observe

other than late stages of the development of the activity in any monkey or anthropoid ape. So far as I have been able to learn, no one at present knows whether in the howler, capuchin, macaque, baboon, or other monkeys the activity is primarily inherited or individually acquired. Initial attempts in the Yale Laboratories of Comparative Psychobiology to observe the first appearance and development of grooming in chimpanzee indicate, seemingly, that it may appear essentially as described in the initial paragraph of this report in a chimpanzee infant which has been reared from birth in isolation from its kind and on which social tradition and parental tuition cannot have operated. The relevant facts are presented thus by the observing investigator, Doctor Carlyle F. Jacobsen (1a, p. 75): "The second pattern of social play, or perhaps better, manipulation with social import, is related to the previous mentioned interest in exploring the details of the face, hands, and arms of the infant's human companions. The characteristic chimpanzee pattern of skin dressing [grooming], in contrast to the earlier simple exploration, appeared quite suddenly when the infant saw a scab on the back of the attendant's hand. She rushed across the cage, walking erectly, arms extended in advance of body, and then thrust the index fingers of each hand through the wire-mesh so as to bring them together on the scab which she then pinched and prodded. Erection of the hair and smacking of lips and tongue accompanied the manipulation. Later the lips and tongue were used for examination of the scab. The complete pattern of behavior was strikingly similar to that of the adult chimpanzee, and occurred before this animal had had experience with creatures of its kind. (*Thirty-ninth week.*)"

Doctor Jacobsen's observation justifies the wholly tentative statement that, in chimpanzee at least, grooming may be structurally conditioned, even if to a considerable extent modified subsequently by experience. Anthropologists, it appears, have generally assumed that human delousing in primitive peoples is a cultural phenomenon. I have nowhere found factual basis for this assumption; presumably it is lacking. If perchance the behavior pattern in point is primarily hereditary in chimpanzee, it would seem improbable that it should be cultural, or in other words primarily acquired, in man or in any other type of primate in which it appears.

Doctor Henry W. Nissen, of these laboratories, has reported in unpublished notes a striking instance of the absence of delousing activity in infant chimpanzees. Two infants, about one year of age.

caged together, became infested with body lice. Neither self nor social grooming or delousing occurred. A third animal, about two years of age, made no effort to delouse himself, but when he was placed with individuals a year or two older the lice promptly disappeared.

I have been able to observe chimpanzees at all ages, from birth to senility, and the following facts pertinent to individual development are definitely indicated. During infancy (birth to three years of age) neither self nor social grooming ordinarily appears. The individual depends on its parents or other mature individuals for such skin treatment and like care as is required. From infancy onward, grooming as social response becomes increasingly definite and frequent until maturity is achieved. Ease of inducing a friendly chimpanzee to groom a human observer, within the limits suggested above, varies directly with the age of the animal. During infancy it ordinarily is difficult, and in most instances my efforts have failed entirely to induce the response. During the period of childhood the response occasionally is given, but more often than not the individual ignores opportunity to groom the human being. But in adolescence or maturity it usually is easy to induce the reaction, and very frequently the performance is quite typical. These ontogenetic facts may indicate either the relatively late or slow maturation of the bodily structures which are essential for grooming, the importance of individual experience, or both.

Far from negative as supplementary evidence of the hereditary versus the acquired character of grooming is that supplied by the human impulsion mentioned briefly in a previous section. Seemingly, from infancy to maturity the normal human being, whether of cultural or natural group, may exhibit, under conditions of social intimacy and familiarity, strong impulse to manipulate the skin of a companion. This is a matter of common knowledge, seldom referred to in polite society and generally ignored as either insignificant or something of which to be ashamed. Nevertheless, the fact is undeniable that skin eruptions are examined with peculiar fascination which often is ill disguised. Blackheads and pimples may be squeezed or popped with evident satisfaction on the part of the active individual. Wounds, especially if partially healed and with scabs or particles of loose skin adhering, may be sought out and picked at or otherwise manipulated. Whether such activity happens to be directed toward the self or another person, it appears commonly to possess

agreeable affects and to command attention which at first seems wholly disproportionate to its biological value or immediate social significance. Yet, to the open-minded and curious student of the genetics of behavior, it irresistibly suggests the concept of recapitulation and tends to appear as the vestige of a phase of racial history in which grooming may have taken conspicuous place as social service.

The facts which I have gathered relative to the ontogenesis of grooming are difficult to state briefly and at the same time definitely and intelligibly, for they cannot be tabulated. Some of them suggest inheritance, others acquisition, of grooming. Obviously, unless the activity has inherited structural basis in the individual, it cannot be assumed to have phylogenetic history in the primates. In the present stage of my inquiry I am inclined to think that the evidence is slightly in favor of the hypothesis, as previously stated, that grooming is an inherited pattern of response whose racial history may be traced imperfectly in existing primates.

VI. RELATIONS OF THE BEHAVIOR PATTERN TO SEX, AGE, ATTITUDES, AND AFFECTS

The statements which follow concerning the correlation of grooming with sex and age are based primarily on my knowledge of the chimpanzee. Although grooming may occur between individuals irrespective of sex, and, beyond infancy, irrespective also of age, it is clear that in sexually mature individuals the pattern is frequently associated intimately with primary sexual behavior. This, however, does not necessarily establish it as a secondary sexual activity, for the simple reason that it is exhibited more often than not between individuals of the same sex or of markedly different age, or under circumstances which would appear to preclude interest in primary sexual behavior or its occurrence. It is not at all improbable that the observed association of grooming with primary sexual behavior is adventitious, but, on the other hand, it may plausibly be argued that what was originally secondary sexual activity has become dissociated from primary sexual activity because of its value as social service, and now occurs in many types of situation and social relationship which are non-sexual. Further, it is to be noted that the presumptive relation of grooming to primary sexual behavior seems to differ radically in the several primate types. It is, for example, much more markedly indicated in baboon than in chimpanzee, and Doctor Zuckerman evidently considers it an associate of sexual behavior. So, like-

wise, Doctor Carpenter suspects that in the New World monkeys mutual grooming has sexual significance and may be described as secondary sexual behavior. Psychoanalytic interpretation of the activity, according to Hermann (1, p. 84), links it with "the first love relationship," that of mother and child.

In summarizing relations of grooming to sex and age in primates, it may be stated provisionally that the behavior throughout the order occurs between individuals of the same or of opposite sex and of like or widely differing age. However important its association with primary sexual phenomena may be, it possesses other important social significance than the sexual, for in many instances it is conducive to the comfort, safety, or even the preservation of the individual.

The following typify experiences of the writer in connection with grooming behavior which are numerous, varied, and impossible of presentation without undue extension of this report. From his early boyhood to sexual maturity, I have at various times been diligently groomed by a certain male chimpanzee. Mostly on such occasions there has been unmistakable expression of friendly interest and of marked satisfaction on the part of the groomer. Never to my knowledge has other reward come to the individual from such activity than the immediate pleasure of grooming; yet this friendly service was freely given despite the fact that the animal frequently was subjected by me to long-continued difficult tasks, which at times quite obviously were irksome to it, and again highly disagreeable. One would have expected resentment and diminution of friendliness. I have referred above to a single individual whose life-history I have followed for several years, but for several other males, less systematically observed by me, I can report essentially similar behavior. It is difficult to believe that either sex or age has important relationship to the grooming pattern in these instances.

Almost invariably, among chimpanzees, the attitude of groomer and groomed suggests mutuality of participation rather than dominance and subjection. Sometimes the groomer, and again the groomed, is the aggressor and strives to initiate the activity. Often it is difficult for an observer to decide which of the two individuals is enjoying the grooming process the more. Such facts definitely contra-indicate one's natural inference that grooming is a selfishly motivated activity to which the groomed individual submits because a dominant or persistent companion insists on indulging in parasite-hunting or in the exercise of a secondary sexual pattern of behavior. There may, it is

true, have been a stage in primate evolution when grooming was essentially one-sided, but today it is manifestly true, for monkey, chimpanzee, and man alike, that mutuality of interest, satisfaction, and usually also of desire, is evidenced. It may be assumed that such satisfaction as may accrue from the capture and eating of lice or other forms of parasite is richly supplemented by companionship and the satisfaction of exchanging useful services. Strikingly pertinent is the remark of Malinowski (3, p. 335): "To the natives. . . it is a pastime, which, while pleasant in itself, also establishes an exquisite sense of intimacy." Were the act of grooming automatic, stereotyped, and perfunctory, one might suspect the dominance of self-interest: instead it occurs in the most diverse settings and often under conditions which seemingly preclude the expectation of other reward than the satisfaction in the activity itself or in the anticipation of being groomed in return.

My observation of chimpanzee convinces me that grooming implies mutual confidence or expectation thereof, liking, acceptance of, or a bid for fellowship. What looks like eagerness to be helpful may of course be primarily expression of selfish interest, and the activity clearly has rich accompaniment of sensory satisfaction. It appears that the mutuality of service and interest tends to forge more or less lasting bonds of sympathetic understanding and trust. This interpretation of the behavior of the chimpanzee is strongly supported by notable aspects, frequently remarked, of the social relations between chimpanzee and man. For example, all students of the anthropoid apes, and indeed all persons who have come into intimate friendly relations with the animals, know well that one of the best ways to win the friendship and confidence of a great ape is to render it some signal social service, such for example as release from irksome or uncomfortable confinement, skillful and gentle removal of a painful tooth or thorn, treatment of an infected wound or any painful injury, supply of shelter when needed, or of protective covering or food when strongly desired. It is well attested by experience that even a single act of considerate kindness on the part of man to chimpanzee may win its enduring gratitude and establish a lasting bond of friendship.

Finally, the intensity of chimpanzee interest in grooming and the absorption of an active individual in the process are most impressive. One cannot doubt the extraordinary affective significance of the behavior or its preëminently important rôle in the life of individual and group.

VII. IS GROOMING A STAGE IN THE EVOLUTION OF SOCIAL SERVICE?

Activities resembling primate grooming occur in dog and horse, to mention only examples, under such circumstances and in such manner that sympathetic affect and mutuality of sensory satisfaction are indicated. Assuredly, also, certain individuals among domesticated animals become attached to one another and to their human companions and caretakers. Neither here nor in case of the primates is it reasonable to cite such activities as purely altruistic, since even in man, highly socialized as he is, every act presumably has egoistic or selfish aspect whether or not it is also altruistic. I wish here to maintain, on the basis of evidence from primate grooming, that objective indications of altruistic quality of behavior are progressively more varied through monkey, anthropoid ape, primitive man, to civilized man. In animals other than the primates indications of altruism are rare indeed by comparison.

It is definitely known that confidence in a fellow member of the species, and also in a human being, is expressed in chimpanzee by presentation in defenseless attitude or by proffer of grooming, with its implications of mutuality of feeling. The obvious basis of confidence in this ape, as in man, is trustworthiness, fairness of treatment, or justice. This fact is demonstrably true for the relation of man with chimpanzee as well as in the relations of the apes among themselves, for, even among chimpanzees, honesty of a sort is essential to social acceptance and mutual trust. To treat a chimpanzee deceitfully or unjustly and to be detected in such unfairness is tantamount to inviting trouble, for the mistreated individual is likely to seek retaliation or revenge even after long delay. Experience indicates that no man is thereafter safe with a chimpanzee which he has humiliated by ridicule (laughed at boisterously and, as viewed by the animal, without cause), wantonly injured physically, disagreeably tricked, or otherwise treated with unfairness or unkindness.

The observations which are summarized in the above general statements clearly bear importantly on the contention herein advanced that grooming in chimpanzees is a form of social service, with mutuality of interest and feeling and with definite altruistic quality. In them, as in us, discovery of willingness to be of service, more or less disinterestedly, encourages confidence. Extreme selfishness may come to deprive the individual of social services which at any moment may become essential to comfort, health, or even to life itself. It may be

inferred that even among chimpanzees a certain degree of unselfishness is profitable.

In the light of my observations and reflections, grooming, a hitherto neglected pattern of primate behavior, is a basically important variety of social response which may stand as center of origin of varied forms and aspects of primate social service. Quite possibly it comprehends in chimpanzee, and perhaps also in many monkeys and in man, varieties of service which in human life would be designated by the following descriptive terms:

1. Hair-dressing, the cleaning of skin and hair by removal of foreign materials; patterning in conformity with taste, habit, custom.

2. Delousing, the discovery and destruction of ectoparasites and the removal of surface irritants. Such activity is relatively common in primitive man as well as in many other types of primate, and the behavior of groomer and groomed presents important points of similarity from type to type.

3. Surgery, the removal of thorns, splinters, proud flesh, burrowing organisms, and other disturbing objects in or under the skin. In chimpanzee, as is indicated in a later paragraph, and also by Köhler (2, p. 322), this is done by skillful use of the finger nails, lips, and teeth.

From grooming, as phyletically primitive form of social service, it is possible, if not also probable, that many modes of response which heretofore have been thought of as distinctively, if not also exclusively, human have originated.

Patterning, in connection with care of coat and skin, occurs in the infrahuman primates, as exemplified below, as well as in man. By Tinklepaugh (4, p. 430) it is reported for two macacus monkeys, male and female, observed by him for several years, that the grooming activity of the male "appeared to serve not merely in cleansing the skin of the female of foreign substances, but also to include the modifying of her appearance to suit his taste. On two occasions, when the two animals were separated for several weeks, the eyebrows and cheek tufts of the female grew sufficiently long to alter her appearance definitely. Both times when the pair was reunited the male immediately proceeded to pull out part of the hairs of the eyebrows of the female and to bite off others which were unusually long. One by one he pulled out practically all of the long hairs of the cheek tufts, greatly changing the female's appearance. During this hair-pulling activity, the male frequently leaned back and surveyed the

female as if evaluating the results." And from Malinowski (3, p. 334) the following description of human patterning among the Trobrianders: "Another element in love-making. . . is the *mitakuku*, the biting off of eyelashes. As far as I could judge from descriptions and demonstrations, a lover will tenderly or passionately bend over his mistress's eyes and bite off the tip of her eyelashes."

Illustrative of the near approach of chimpanzee to surgical practice is the following description based on my experience with a mature male in the Yale Laboratories. I quote from notebook record: "With a tiny splinter in the palmar surface of one of my fingers I approached the netting-wall of Jack's cage to observe his grooming response. As I held out my hand he noticed first something under or about the nail of my index finger and began to pick it. In a few seconds his attention turned to the splinter which was barely visible to me, and with surprising quickness and deftness he shifted the scene of manual operations and with the nails of his index fingers applied together, he almost instantly removed the splinter from beneath the skin. For an instant I saw the bit of wood lying exposed on my finger, then the animal quickly applied his lips and it disappeared into his mouth. Certainly it was not more than fifteen seconds from the presentation of my finger until its withdrawal, splinterless, and with the skin unbroken and unbruised, save where the splinter had entered, so skillfully had the huge fingers of this large ape been applied."

In primate life it often is convenient to recognize three comprehensive interrelated categories of voluntary activity. In order of their importance for the life of the individual, but not necessarily for the enhancement of socialization, they are: (1) self-preservative activities, as in search and competition for food, shelter, comforts, or luxuries; (2) reproductive activities, as exemplified by sex-play, courtship, mating, and the bearing of young; and (3) social service activities, as typified by parental care, tuition, guidance, and companionship of young, and above all, by grooming, wherein, precisely as in the case of parenthood, the individual voluntarily and with evident satisfaction does for another that which it cannot at all, or so well, do for itself. From the first to the last of these categories socialization of response is progressively and increasingly important, and so likewise the manifestation of altruism, by which is meant the merging of self-interest in social interest and its requirements.

Whereas in other mammalian orders than the primates, social service, save as in the parent-offspring relationship, is relatively infre-

quent, commonly obscured by the interests of self-preservation and of reproduction, and infrequently suggestive of human conduct, in the apes it is relatively conspicuous and impressive because of its frequency, obvious individual and social values, and its altogether striking resemblances to analogous behavior in man. A very large part of the time and attention of the chimpanzee in captivity is devoted to grooming and related social service activities. To attempt quantitative estimate at present would be hazardous, but it is a matter of common observation that, in chimpanzee, grooming is the most frequently indulged in of mutually interesting and serviceable activities.

VIII. HYPOTHESES, PROBLEMS, AND INFORMATIONAL NEEDS

Restated briefly for emphasis, the hypothesis suggested to me by the varied information which has been sampled in this report is that grooming in chimpanzee, as type, represents a genetically important pattern of primate social response, from which have evolved incomparably useful forms of social service; that it represents a step in the socialization of primate behavior and stands as forerunner of human hair and skin dressing, nursing, medical and surgical treatment.

From chimpanzee to man intellectually and socially is a large step, but it is readily believable that socialization as a recent aspect of primate evolution links man with chimpanzee as nearest relative. In any event, intensive naturalistic and experimental study of the evolution and development of social behavior in the order primate promises to yield extraordinarily rich returns.

The hypotheses and questions which have been proposed are intended to provoke inquiry. Any appearance of dogmatism is misleading, for all of my statements are tentative, save those which are definitely based on verified observations, and I have endeavored rather to open a new vista of behavioral research than to present even the meager body of information which is at present available to me. Instead of defending the hypothesis which has been proposed, I wish merely to beg for assistance in securing facts which will either sustain or destroy it.

Of problems in connection with grooming there are far too many of first-rate importance for complete listing. The best that I can do is to indicate them by categories.

1. Problems connected with the racial occurrence, type, and pattern of grooming. In this connection there is urgent need for accurate

and detailed descriptions of the pattern in such existing primates as exhibit grooming.

2. Problems of individual development, as contrasted with evolution. These might well include inquiries into the extent to which grooming is structurally conditioned or inherited in the various types of primate, and also to what extent it is modified or modifiable by individual experience, including tuition and group culture. Needless to say, phyletic and ontogenetic accounts of grooming are equally important and necessarily supplemental.

3. Problems relative to the conditions and correlates of grooming. Typical of this category are questions concerning the relations of the pattern to other types of behavior. Is it, for example, a secondary sexual activity, and what are its relations to age and physical status as well as to sexual condition and the reproductive cycle? What is the neurological basis of the pattern, and why the diversity of grooming and extreme difference in frequency of occurrence and apparent values in different types of primate?

4. Problems concerning the social value of grooming. Is it, for example, in any or all of the primates, actually a form of social service or are appearances misleading? Does primate socialization trace from lemur, or other prosimian, through monkey and anthropoid ape to man, and whether or not such is the case, does the altruistic quality of this behavior pattern increase from relatively primitive to highly organized primates?

5. Problems covering the occurrence or absence of grooming and analogous behavior patterns in man. There is a strange paucity of accurate and reliable descriptions of such human activities as resemble the grooming of infrahuman primates. There is no certainty that human delousing is cultural. In early infancy as well as in primitive stages of human culture, search should be made for structurally conditioned as well as for cultural patterns of grooming.

On every hand, as one considers the problems which it is the purpose of this report to exhibit, there appear informational needs. I have been discouraged by their multiplicity, and I am endeavoring, by exhibiting certain of them in their relations to what may turn out to be a crude working hypothesis, to stimulate interest and induce inquiry. Particularly desirable is careful observation of nature-folk and of various infrahuman primates under favorable circumstances and by adequately trained observers. Many of the things which should be done demand technical training and an unusual background of

information. If we are to trace the evolution of primate social service the world must be our laboratory and all students of life investigators. This of course does not imply that certain problems relative to grooming may not promptly be attacked experimentally. On the contrary, such procedure is as clearly possible as it is desirable.

The non-quantitative contribution of fact and surmise which constitutes this report can be justified only as attempt to exhibit an assemblage of problems and to suggest a hypothesis in the light of which they may be attacked more purposefully and more intelligently than might otherwise be the case. I make no apology for the factual content of the report. My generalizations are sure to be modified, more or less importantly, by further research; my basic hypothesis may be disproved. Yet, even in instigating the labor required for such disproof, I shall have rendered precisely the service which has been my objective.

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School of Medicine
Yale University
New Haven, Connecticut

LES ASPECTS GÉNÉTIQUES DU PANSAGE, FORME DE COMPORTEMENT IMPORTANTE CHEZ LES PRIMATES

(Résumé)

Le pansage veut dire une forme de comportement dont les traits essentiels sont l'examen et la manipulation de la peau et du poil d'un compagnon avec les doigts, l'enlèvement des objets extérieurs, et le transport de ceux-ci à la bouche de celui qui panse, dont les lèvres et les mâchoires auraient pu en attendant en motion, avec la production du son, comme avec l'anticipation de quelque chose à avaler.

Cette habitude se montre chez plusieurs primates. On ne l'a pas notée chez les Prosimiae. Elle paraît plus fréquente chez les singes de l'Ancien Monde que chez ceux du Nouveau Monde. Chez les anthropoïdes elle est très développée chez le chimpanzé et relativement simple et infréquente chez le gorille et l'orang-outan. Il paraît qu'elle se trouve aussi chez l'homme, comme une forme primitive de service social.

Les premiers essais de suivre l'ontogénèse du pansage chez le chimpanzé indiquent qu'il peut se montrer chez un jeune élevé depuis la naissance isolé de son espèce, sur lequel la tradition sociale n'a pu influencer. Aussi peut-on supposer que l'habitude est naturelle et non culturelle.

On présente le pansage comme une forme fondamentalement importante de réponse sociale qui se trouve au centre de l'origine de diverses formes et de divers aspects de service social. Il comprend chez le chimpanzé, et probablement chez plusieurs singes et chez l'homme, des variétés de service qu'on peut appeler l'arrangement de la chevelure, l'enlèvement des poux, et la chirurgie. Il suggère la confiance mutuelle, l'amitié, l'acceptation de camaraderie. Quoique clairement en relation avec le comportement sexuel, il n'est pas essentiellement une expression de l'intérêt sexuel.

YERKES

EINE GENETISCHE BETRACHTUNG DER SÄUBERUNG, EINER SOZIAL WICHTIGEN FORM DER TÄTIGKEIT BEI PRIMATEN

(Referat)

"Säuberung" (grooming) bezeichnet eine Form der Tätigkeit, deren Hauptbestandteile die Untersuchung und Manipulierung der Haut und der Haare eines Kamerades mit den Fingern, die Entfernung fremder Gegenstände, und ihre Führung zum Munde des Säuberers sind. Die Lippen und Kinnbacken des Letzteren können einstweilen sich bewegen, unter Hervorbringung von Läuten, als ob vorausgeahnt würde, dass es etwas zu schlucken geben würde.

Diese Tätigkeitsgestalt (pattern) zeigt sich bei vielen Primaten. Bei den Prosimiae ist sie nicht bemerkt worden. Sie scheint bei den (kleineren) Affen (monkeys) der Alten Welt häufiger zu sein, als bei denen der Neuwelt. Unter den menschenähnlichen Affen (anthropoid apes) ist sie bei Chimpanzen hoch entwickelt und bei Orang-utan und Gorilla relativ einfach und selten. Es wird darauf hingewiesen, dass sie auch bei dem Menschen vorkommt, als eine primitive Form der sozialen Behilflichkeit (social service).

Anfangsversuche, die individuelle Entwicklung (ontogenesis) der Säuberung zu folgen, weisen darauf hin, dass sie sich bei einem Säugling

offenbaren kann, der seit der Geburt von Seinesgleichen abgesondert gelebt hat und der also unmöglich die Einwirkung der sozialen Überlieferung hätte fühlen können. Es ist die Folgerung wahrscheinlich, dass diese Tätigkeitsgestalt eine natürliche und keine kulturelle ist.

Die Säuberung wird dargestellt als eine wesentlich bedeutsame Form der sozialen Reaktion die das Zentrum des Ursprungs verschiedener Formen und Phasen der sozialen Behilflichkeit bildet. Sie schliesst bei Chimpanzen, und wahrscheinlich bei vielen Affen und beim Mensch, mannigfaltige Formen der Behilflichkeit in sich ein, die als Haarputzen, Entläusung, und Chirurgie bezeichnet werden können. Sie besagt gegenseitiges Vertrauen, gegenseitige Neigung, und Annahme der Kameradschaft. Obwohl sie selbstverständlich der sexuellen Tätigkeit verwandt ist, ist sie nicht vornehmlich ein Ausdruck der sexuellen Interesse.

YERKES

STUDIES IN THE SOCIAL PSYCHOLOGY OF SCIENCE*†

From the Pedagogical Academy, Stettin

RICHARD MÜLLER-FREIENFELS

It is not easy to ascertain what images appear in the consciousness of an average person when he says or hears the word "*Science*." These images probably are as indefinite and changing as the images of "*State*" which, as is well known, play from naïve personification into mystic abstractions. While some people (like the young lady of Anatole France) picture the state to themselves as "a stern and ill-humored man behind the office-window," others (like Hegel) conceive it as a superhuman, godlike individuality. In a similar way, when people confront a sentence like "Science teaches" they think of a dignified, white-bearded professor, employing personification, or they think of an *impersonal gigantic something* which, in addition to a vague mass of scholars as a background, comprises universities, libraries, and other research institutions with contours that are no less distinct.

Neither of the two conceptions nor any similar one is in reality entirely wrong, for the representatives of scientific activities are indeed *individual subjects*, and they are but exponents of an immense *social structure* (Sozialgebilde) which, in order to be effective, requires a vast store of *objective articles* such as books, apparatus, etc. We shall examine in what follows the strange fashion in which scientific activities oscillate between the "subjective spirit" represented by individuals and groups and the "objective spirit" objectified in books, apparatus, and other objects.

Let us begin with the paradoxical fact that "Science" is not adequately characterized if we identify its nature with *an acquirement of knowledge* (Gewusstwerden). It may startle a non-professional, but it is nevertheless true that a large portion of all sciences is not "known" (gewusst) at all, either by individuals, or by the whole group of scholars. To speak accurately, it is in fact a great exaggeration to say that Aristotle or Leibniz had assembled in his brain the

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total knowledge of his generation. Today certainly this is utterly impossible; there is surely no professor who would be able to lecture on the whole material of his special field without aid to memory. During the Middle Ages, when there were no books or only a very few, science was dependent upon "knowledge" to a much larger extent than today; now this is no longer necessary since we "objectify" our knowledge in books and other implements for reasons of mental economy. This guarantees not only a considerable saving of energy but also an increased *security* of science. If we consider, also, that today we expect a representative of science not only to conserve the existing knowledge, but to increase it by his own research and to make it useful in life, it is evident that an overburdening with purely reproductive knowledge would stop his productivity. William James has already pointed out that the modern physician, for instance, does not remember every prescription, but that his professional competency consists mainly in his ability *to find* the necessary knowledge. "Knowledge" (Wissen) in the modern sense of the word is certainly no longer a purely subjective matter, but is realized only in closest relationship with the objective spirit which is represented mainly by books and other implements. If we observe *the types of men representing science* from the social psychological point of view, we have to distinguish at least three types:

1. the scholar (including the teacher) (Gelehrter)*
2. the investigator (Forscher)
3. the practitioner (Praktiker)

These types are related to knowledge in very different ways. The "scholar" is most closely connected with it. He devotes himself to the preservation of knowledge, not merely by hoarding knowledge, but by conveying it to other individuals; this makes him a "teacher" and, by committing himself to this function, he approaches the type of a practitioner. The type of a purely reproductive scholar has become very rare, since (as we have shown above) the large number of existing books discharges the function of knowledge preservation even better. But the book has become a serious rival in the function of teaching, or of knowledge transmission. Certainly this is true for

*Translator's note: "Gelehrter," as well as the word "scholar," designates not only a man who applies himself to research, but also one who has a respectable knowledge; the author has the latter in mind. "Investigator" suggests rather a technician; a "Forscher" is a "researcher."

the academic lecture which, strictly speaking, is a relic of an epoch when no books existed and, therefore, the text had to be dictated. Today this kind of teaching is justified only in the case of a teacher with a pronounced oratorical talent. In all modern types of universities this method has been superseded by the dialogue form of instruction, where the technique of the teacher is more important than his possession of knowledge. Here the type of the scholar merges entirely with that of the practitioner.

We look upon *the investigator* as the most distinguished type of scientist. Only he who increases the general knowledge independently passes for a real scientist today. This leads to the peculiar paradox that an investigator does not need to be a great scholar. Indeed too large a burden of knowledge may even inhibit one's activities as an investigator. The result is the often-mentioned "specialization." There are relatively few scientists who are both scholars with a comprehensive knowledge and original investigators. At the same time it is true that the combination of research and teaching forces many investigators into a certain comprehensiveness (*Vielseitigkeit*), but frequently public opinion reproves this combination by calling it "academic" ("Akademikertum"). They mean by this that *conservative* tendencies, pushed forward by the activity of teaching to the disadvantage of the investigator's *progressive* attitudes, are predominating. The psychological attitude of the teacher is contrary to the attitude of the investigator, inasmuch as the teacher is bound to cling to the *established facts* (*das Feste*) of science, while the investigator must be especially interested in the *uncertainties* (*das Nicht-Feste*). This is the reason for the fact, worthy of note from the social psychological point of view, that in every science *outsiders* (*der Aussenseiter*) especially have made the most significant discoveries. They retain a certain impartiality which frequently has been lost by men in the field because they are too close to the subject. Since the authority of a teacher in the eyes of his pupils rests upon the certainty of his knowledge, this certainty is easily overemphasized. The outsider, on the other hand, rather preserves an open eye for the weaknesses of science. And in investigation the weak spots are just the points of attack. All progress begins with doubt, the productive significance of which Descartes has pointed out. Want of knowledge (*das Nicht-Wissen*), therefore, is just as important for the investigator as knowledge, a fact which Socrates formulated in his proud statement: "I know that I know nothing." The "*docta ignorantia*" of Nikolaus

von Cues, not learnedness, is the attitude befitting an investigator. The creative genius of a great investigator is often better shown in his *stating of problems* than in his *solutions*. Solutions frequently were produced by intelligences of average rank.

The third type of scientist has been called *practitioner* and in the course of cultural evolution has become more and more distinguished from the two other types. This type also is not so much characterized by his ability to master the total range of his science, as by his ability to use his knowledge, which often is limited. Investigators who confine themselves exclusively to research frequently have a certain antipathy toward the practical exploitation of their discovery. Faraday, for example, left it to others, as a rule, to turn his far-reaching results (*Erkenntnisse*) to profit. Frequently the pure theorists look down upon the practitioners with a certain disdain. This happens more frequently in a country like Germany than in America. Unquestionably, such an attitude is not justifiable. From a psychological point of view, it is the last remnant of the ancient Greek disdain for "banausic" persons, when teaching for money was considered ignoble. From the point of view of one who thinks that the nature of science is "knowledge" only, the standing of pure technicians is often indeed not high. But as soon as we understand that science is socially justified not only through knowledge but also through *action* (*Wirken*), an attitude of disdain appears to be unjustified. Max Scheler, in his "Soziologie des Wissens" (2), regarded *technical* knowledge as a special stage of science characteristic of our epoch. In reality, science has at all times been practical; the new aspect is only a change in the proportion between theory and practice, the center of gravity moving toward the side of practice at the present time. Possibly the pure theorists' attitude of giving themselves airs is only a response to the greater respect and greater economic power the practitioners enjoy among the public.

But all three types distinctly show that "knowledge" alone no longer makes the scientist, for especially the investigators and practitioners work with books, machines, and many kinds of *technical material* which, as objective spirit, belong also to "science." In our conception of science we have to include these instruments, just as the conception of a modern state has to include not only the associated individuals but also the tremendously complicated equipment without which a modern state is incomprehensible.

Science, therefore, is surely no mere psychological concept, but one

belonging to that complicated "sociological structure" (Gebilde) whose constituent parts include numerous concrete things, as I have shown in my "General Social and Cultural Psychology" (1). Everywhere the subjective spirit stretches out beyond itself and substantiates itself in concrete objects. Even if we admit the necessity of this objectivation of the spirit, we should not conceal that a great danger is hidden in it.

We shall refer later to a parallel development in religion where likewise, at the same time that it was rendered objective by the "church organization," a pronounced externalization (Veräusserlichung)* took place. Science that has become too much objectified loses its contact with life. Indeed, it raises itself forcibly above life, and life in this way is in danger of being stifled. This is best shown in that branch of science where the objectivation and mechanization have advanced most—the *technics*, which in many ways has turned from being a servant of man to being his master. Not only because innumerable men have to sacrifice their whole lives to the watching of machines, but also because those who seem to be the beneficiaries of the machines have thus become dependent upon the machines.

It is not necessary to give any examples, as this item has frequently been discussed in recent writings. But the objective spirit stifles the subjective, spiritual life not only in its concrete forms, but also in its abstract forms such as knowledge. Mere knowledge does not make a person wise; at the disposal of a dull individual it may even be a danger. Even knowledge has to be assimilated, just as food for the body, in order to become a genuine factor of life. For that reason our typology of scientists has to be supplemented by a few further varieties, figures in caricature of the first-mentioned types, but especially of the scholar. They are never missing in any group and show the dangers of carrying reduction to scientific habits too far (zu weit getriebene Verwissenschaftlichung). We have, for instance, the *pedant* (Schulfuchs), who carries around his knowledge well stowed away but cannot make use of it because he is incapable of applying it to concrete situations of life. Then we have the "*doctrinaire*," who has certain rigid conceptions to which he would like to subordinate reality but whose reasoning power is not flexible enough to enable him to adjust himself to the demands of reality. The "*conventional*

*Translator's note: "Veräusserlichung" strictly means process of turning from things of the spirit to the mechanical things of life, hence mechanization, submission to the dictates of mechanical things, devitalization.

man" is related to these two, but not identical with either of them; he is the man who is burdened with so much conventional knowledge that he fails to keep an open eye for the necessities of his time. The characteristics of these distinct types also appear in a less pronounced form as typical mistakes from which nobody is absolutely exempt; any person at some time behaves like a pedant or a doctrinaire. Modern education has recognized this danger and has tried to replace the book method ("Lernunterricht") by the project method ("Arbeitsunterricht"),* viz., a type of instruction that will not burden the pupils with dead knowledge, but will rather develop the qualities of an investigator and practitioner. Every kind of approach shows us that knowledge is not the essential quality of science and that science is not only "objective spirit," and demonstrates that knowledge as a function of the spirit with objective tendencies (eine objektiv gerichtete Funktion des Geistes) has to be resubjectified as a function of subjective activity (Funktion des subjectiven Wirkens), in order to become fertile. *It is this alternate play between objectivity and subjectivity which constitutes life in science.* Science, properly understood, does not stifle subjectivity but endeavors to invigorate it. If lately in educational circles there has been a call for a philosophical permeation of academic studies, it has not only been for the purpose of opposing excessive specialization; it is intended also to give knowledge a stronger personal note. It is one of the characteristic differences between philosophy and science that in philosophy the personal factor has more importance. It is for this reason only that philosophy as a separate entity apart from science can be justified from the social psychological point of view.

II

In order to understand the nature of modern science from a social psychological point of view, it will be helpful to compare science with the modern *economic systems*, especially with the *capitalistic* system, for modern science is a *capitalization of the spirit, a spiritual capitalism*, which shows all characteristics of the economic capitalism.

Let us enumerate first the most important characteristics of the

*Translator's note: In America the term "project method" has been adapted for many special attempts in educational reform; "Arbeitschule" strictly means learning by getting first-hand experience, implying manual and laboratory type of work.

capitalistic order, following in general W. Sombart (3) who has best comprehended the phenomenon of capitalism. They consist in:

1. impersonality
2. boundlessness and massiveness
3. rationalization and reduction to arithmetical operation (Rechenhaftigkeit)
4. mechanization
5. specialization.

Let us explain it first by means of an example: Imagine a *precapitalistic craftsman*, e.g., a shoemaker of the Middle Ages. Above all he was working *personally* (by himself); he was personally responsible for a circle of customers he knew personally, not with a view of producing masses, but of producing as much as the needs of every case demanded. He was a stranger to all methods of rationalization and speculative calculation. Machines in the modern sense of the word were not used. There was no specialization in the modern sense; every master craftsman mastered substantially all practices of his trade.

Imagine, on the other hand, a *modern capitalist*, a manufacturer of shoes. He himself does not work; he has work done, not for a circle of customers who are known to him personally, but for an impersonal, boundless mass whom he has to win over by advertising. Boundlessness and massiveness founded on principles are the characteristics of his production. Because of the speculative method of its determination of purpose, everything is rationalized and calculated with extreme exactness. The process of production is rigidly mechanized; no longer is the main work accomplished by organic energies, but by inorganic machines. Besides, every process is greatly specialized, and this specialization reacts upon the subject so as to produce a society of "partial" men (Teilmenschentum).^{*} All in all, *the center of gravity has been removed from the subjective to the objective*. By seemingly subduing objectivity, man has become dependent upon his objects himself.

If we try to characterize the *prescientific knowledge as in contradiction to science*, we have to use the same conceptions and characteristics, virtually as we have applied them to the industrial system.

^{*}Translator's note: "Teilmenschentum" implies that the individual is incomplete and is dependent upon the ability of others not only in his production, but in his ability and reactivity in general.

This is no matter of mere chance, but indicates a deep and real relationship between the two fields.

If we begin with the prescientific knowledge of a naïve man, above all we see that it is cut out entirely for his personal needs and not for massiveness, or even boundlessness. If rationalization and arithmetical calculation appear at all, they appear only in very primitive forms. And, similarly, mechanization and specialization, as applied to demarcated partial fields, are entirely absent.

But as soon as thinking turns into a *scientific process* (sich verwissenschaftlicht) it presently begins to surmount personal needs (das persönliche Bedürfnis) and strives for *superhuman universality*. The *mass* of knowledge is a desired goal which knows no limits. Rigorous *rationalization*, expressed in the formation of clear conception and in the exclusion of all emotional influences, is aspired to. As far as possible, everything is reduced to mathematical *calculation*. In addition to this, a high degree of *mechanization* of the entire mental life takes place; the workers observe with telescopes and microscopes; other senses are replaced by chemical and mechanical means of greater sensitiveness. And, above all, everybody *specializes* in a sectional field within which knowledge is pushed to the very limits. In short, all characteristics which we have observed in the capitalistic system recur in connection with the scientific knowledge! *Here and there the subjective is restrained in favor of the objective; here, too, man, while seemingly subduing objectivity, has become dependent upon his own creations.*

This comparison of the modern economic system and science may be pushed further into many details interesting from the social psychological point of view. I wish to stress the fact that both fields rest upon very extensive systems of credit! As in the modern economic world people figure prevailingly with values which are based upon "credit," that is, confidence, in modern science we verify directly a minor part only of our knowledge. In a certain respect we accept on credit the results of other investigators, without re-examining them. In this connection it may be pointed out that the competency of the modern investigator, like that of the modern economist, depends not least upon his ability to estimate correctly the "responsibility" of his guarantors. One needs only to calculate how much time a scholar, who is also a teacher, has for the reading of books and journals and compare the result with the immense quantity of scientific papers of all kinds, in order to understand to what large extent his knowledge

even in his particular specialty must be derived out of second, or even third or fiftieth, hand and, therefore, belongs to the "credit system"! Incidentally, there is a helpful factor in the situation that no small part of scientific work consists in an unremitting examination of responsibility in the form of scientific criticism and that, therefore, in this regard science is a collective achievement, also.

A further feature common to modern science and to the economic system is the *tendency to reduce all terms of quality to terms of quantity*. In the economic system the factor that permits a complete reduction to quantity is *money*, which, through our modern mode of payment without cash, has become a conception free from every implication of substance. We find a strange parallel in science, which is by no means adventitious: science tries to reduce all given qualities to *numerical values*. The reason of this in either case lies in the tendency to present the elements employed in a form that is as nearly as possible generally approved. In the economic system this is achieved by convention (Konvention). In science this is possible through the substitution of sensations that always are varying greatly according to personal dispositions by numerical terms. This has been attained to the highest degree by the most perfect science, physics. Here one no longer speaks of colors and tones, but replaces these subjective conceptions by numbers that indicate the numbers of oscillations per unit of time. In the same way, warmth and every other form of energy is determined exclusively in terms of quantity. It would be the ideal of physics to reduce the whole world to a purely quantitative formula just as a modern political economist reduces the entire economic life of a state to figures. Other sciences try in a similar way to reach the highest possible degree of exactness by the introduction of calculations; we have a good example in psychology, which abounds in statistics. We cannot discuss here whether its success is comparable to the success of physics, using the same method. We only wish to point out the tendency of reducing everything to quantity as a social psychological fact common in the modern economic system and in modern science, and resting upon the same mental conditions (Voraussetzungen).

The last item of our comparison between the modern economic system and science is the fact that the two are *not static but dynamic realities*. Neither one rests upon secure (fest) possession but on unceasing new acquisition of material or of spiritual property. A modern person engaged in an enterprise, as well as a modern scientist, is

a *type of conqueror*, as we have already shown when we were discussing the predominance of the investigator type over the scholar type. The precapitalistic type of economist, as, for instance, the farmer, rested upon secure possession; his economic activities moved within a quiet circular system; production and consumption were in a state of equilibrium; everything was of a "static" nature. With capitalism, everything is different. The capitalist's work does not rest upon property, but upon *acquisition*. Frequently he works without secure possessions, only with borrowed capital. The essential thing is the "amount of business transacted," as his values are values only if they circulate. He profits from the fluctuations of the economic balance, namely, from the turn of the market. In short, everything depends upon motion, or "*dynamics*." It is similar with modern science. While the old type of scholar who confines himself to the collection and presentation of knowledge (*der reine Gelehrte*) (still predominating in China, for instance) was depending upon the possession and the statics of knowledge, the modern investigator is working dynamically. His ideal is not rest, or possession, but, on the contrary, motion; or turnover. He risks bold hypotheses (similar to the speculations of a person undertaking capitalistic enterprises), and does not take it as a misfortune if his hypotheses are soon replaced by others. It seems more important to him to keep his investigation flowing than to accumulate possessions which are as secure as possible. In this he feels certain from his experience that frequently first errors push forward science. All that, in the scientific and in the economic world, bears the stamp of the age of "fashion" (using the terminology of G. Tarde); it points toward the common social psychological foundation of the entire modern life which must be understood first in order to comprehend the details.

III

Social psychological problems of another nature are called forth by the relationship of science to *religion*. In the beginning of the cultural development the two are inseparably connected; we cannot trace the slightest consciousness of any distinction between the two. The religious myth is looked upon as "truth," and the religious-magical practices are accepted as an unexceptionable technique. The priests are also representatives of the medical, juridical, and philosophical (*weltanschaulich*) knowledge. In the course of development naturally a change took place. Science gradually became dissociated

from religion, although it still was dependent upon religion for a long time. Still in the Middle Ages the task of science was to prove that religion was right. Only in relatively recent times has science grown so strong as to be able to stand independently *beside* religion, indeed, to claim that it could alone (and even better) discharge the tasks religion had to solve within the social body.

In order to prove this we must first recollect the functions of religion. There are mainly three:

1. Religion, especially during its first stage of development, *practices witchcraft*, that is, it endeavors to change the world with special means according to the will of men. The means usually employed are designed to influence supernatural powers: sacrifice, prayer, rites of all kinds. Furthermore, "prophecy," the desire to foresee the future in order to control it, is an important task of religion.

2. Another task of religion is the superintendence of forms of social life from a religious point of view. Marriage, family, tribal community, law, war and peace, and many other items, are under religious supervision and are supposed to operate efficiently only with religious sanction.

3. Thirdly, it is the task of religion to work out a *general view of life* (Weltbild).

As science claims to substitute for religion a more reliable means, it has, of course, to take over all functions mentioned above. Therefore, we have to examine in what ways it is trying to comply with this task. It differs from religion, first of all, through its choice of means. It tries to exclude as much as possible subjective, supernatural interpolations and to replace them by a controllable objective causality.

If we disregard in the conception of *magic* the demonic causality and see in it nothing but a method to change the world according to human intentions, then undoubtedly we may say that science in many ways fulfills this function better than religion. In place of *personal*, demonic powers which the primitive sorcerer tried to conjure, science calls upon *impersonal forces of nature* for assistance, whose action is highly controllable and calculable. It heals illnesses not through conjuring ghosts but through the chemical causality of certain drugs. It masters space and time through the forces of steam and electricity. Indeed, it even undertakes *prophecy*; for the knowledge of natural laws in many cases permits prediction of coming events. To be sure, its method is not focussed *ad hominem*, it is not so personal as the method of religion. Its achievements are just as impersonal as its re-

sources, but for the same reason they are of much more general significance. The "magic" and "prophecy" of science are not restricted to this or that individual, but are available to everybody; they do not depend upon subjective, but upon objective, causality. The social functions of religion also are taken over by science, by replacing the inexplicable commandments of religious bodies by rational understanding with its support of social structures.

Prohibition of marriage for relatives is no longer justified by means of a mystical tabu, but rests upon the understanding of eugenic laws. Subjection to political authorities does not depend upon a disclosure of the Divine Will but upon insight gained by rational political considerations. It is interesting from a psychological point of view that in religion the binding power is *inexplicable, irrational* (das Unerklärliche), while in science *that which is explainable and rational* takes possession of the same social functions.

But the last-mentioned task of religion, *the formulation of a general view of life* (Weltbild) has been taken over by science. To be sure, there are characteristic distinctions. The Weltbild of religious bodies was essentially a view of distant objects, as religion began with the most difficult problems, cosmogony and eschatology. From these cosmical speculations explanations about the details of life were gradually derived. The Weltbild of science begins with a "close-up"; it starts from an explanation of imminent facts and only gradually ascends to the interpretation of the great cosmic problems. Religion in the creation of its Weltbild is primarily concerned with *subjective* satisfaction and consolation for the individual suffering under the calamities of life; science is directed toward *objective facts*, excluding subjective wishes and needs, and by this it gains results that are more generally approved, but it loses in significance for subjective life. We may, therefore, accept as a fact that science in modern society has taken over the functions of religion in many respects. The most difficult task for social psychology remains to decide whether this change constitutes *progress* in every direction, and, therefore, whether religion has become superfluous.

In regard to objectivity undoubtedly the achievements of science are securer than those of religious magic. The modern medical method of curing is safer than the method employed by primitive medicine-men and modern "scientists." The knowledge of recent eugenics or of political enlightenment is better founded than the religious commands of tabu and the belief in totems that unite a primitive tribe.

And the scientific Weltbild has a better foundation and is better guarded against criticism than the religious.

From an objective point of view all that is correct; but from the social psychological point of view the *subjective aspect* also must be seriously considered. In this respect a comparison of the two is not absolutely in favor of science. Wherever objective, substantial effects are at stake, science is more effective than religion. But there are enough situations in life where even modern men will resort to prayer and religious absorption and find consolation in them. Science may call this support "suggestion," but as far as effect and social psychological significance are concerned it makes no difference. Certainly science offers a poor substitute for the subjective happiness (Beglückung) which originates from forms of religious cult and faith. This social psychological fact proves to be especially significant in situations where religious sanction is given to social ties. In such matters subjective feeling aroused by religion is frequently much more effective than insight based upon science. The old marriage, for instance, resting on religious convictions, was much steadier than modern marriage, which is nothing but a legal pact and rests upon practical and aesthetic considerations.

We may earnestly doubt whether scientific insight into common origin or blood-relationship will ever be able to form as strong a relation as belief in totems, or to produce such a strong religious tie as the one that has united the Jews through milleniums in spite of their geographical separation. And, after all, is the scientific Weltbild that tries to replace that of religion really able to take charge of all the functions religion usually performed? The detached results of science may have a more reliable foundation; but, on the whole, they still disregard entirely those questions which a religious philosophy of life is answering (though possibly in a wrong way)—the origin and final aim of the world! We are facing here the strange fact that sociologically an error generally accepted as faith (ein allgemein geglaubter Irrtum) is a greater power than truth which is only accepted by a few. *Under these circumstances it is entirely intelligible from the sociological point of view that religion keeps alive in spite of science* (neben der Wissenschaft). Science must understand yet that it has limits and that (even though one may rate its significance very high) it cannot fulfill all social functions of religion.

Finally, let us add a few more words about the *problem of truth* which exists in religion as well as in science, although it is not entirely

a *social psychological question*. We shall not comprehend the conception of "truth" in the objective sense of the doctrine of knowledge but in the *subjective psychological sense of believing something to be true*. Then we can see that there is not one principle of truth but quite a number of them, which overlap in many ways. The following, in our estimation, are the most important:

1. evidence perceptible by the senses (*sinnliche Evidenz*)
2. correctness established by formal logic (*formal-logische Korrektheit*)
3. interpretation of feelings (*Gefühlsbewertung*)
4. pragmatic proof through practical confirmation
5. social convention

If we examine these criteria of truth it becomes evident that they rarely are joined together; on the contrary, they very frequently conflict with one another. Conflicts between religion and science originate in the majority of the cases from the fact that they appeal to different criteria of truth. Generally religion relies above all upon *feelings*, but it also endeavors to give proof based upon *logical correctness* (all priests were skilled, many were subtle, logicians) and sometimes also upon practical confirmation, such as was still employed by William James. *Science* excludes proof through emotions, it is interested in *evidence perceptible by the senses*, in *logical correctness*, and, above all, in *practical confirmation*, even though not in a subjective way as religion is. But neither religion nor science can get along without *social convention*, and in this item the discussion of truth touches our problem. The individual usually is not clearly aware of the fact that his believing something to be true is dependent upon social approval and that he is subject to its influence. That is true not only for religion, to which a well-known quotation somewhat modified, applies: "*Cuius regio, eius religio*,"—meaning that the religious conviction of most people is determined by the social group to which they belong. This is also true of our *scientific* convictions, even though an individual may not be aware of it. As social psychologists, we are led to the conclusion not only that all of us are sons of our time and of our country in regard to our scientific convictions, but that frequently the incidental choice of their university influences the manner of thinking of many scientists. To be sure, greatly superior minds free themselves of such influences, although we can observe even in refusals of certain opinions elements of

social psychological dependence. Certainly, scientists must clearly see—which is not always the case—that not all of their “items of truth” are objectively verified, but that, to a large extent, especially when referring to fundamental questions, they are of an *entirely conventional nature*. Our statement above, that science is a “credit system,” is true in another sense, namely, that subjective belief, though socially approved, plays a much more important rôle than most scientists are aware of. This does not favor a nihilistic scepticism, but nevertheless represents an indisputable fact which social psychology of science cannot ignore. Not only knowledge and belief confront one another in science and religion, but also belief is opposing another belief; for even science is interwoven with ideas which are supported only by belief. “Belief,” on the other hand, is only in rare cases identical with an individual’s taking something for granted. It usually is a social psychological fact based upon necessities of social life and must be understood in this relationship.

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Pedagogical Academy
Stettin, Germany

ÉTUDES SUR LA PSYCHOLOGIE SOCIALE DE LA SCIENCE

(Résumé)

La notion et la fonction sociale de la science ne reposent que partiellement sur le “*savoir*” au sens psychologiques. L’investigation et la fonction pratique ne sont pas moins importantes. Cela se voit dans ce que les représentants de la science se divisent dans trois types, c’est à dire les savants, les investigateurs et les praticiens, qui ont des fonctions sociales différentes. La science moderne tend sous beaucoup de regards à *s’objectiver*, c. à d. à devenir “esprit objectif” au sens de Hegel. Dans ce développement, il y a le danger de la dépersonnalisation de la vie mentale. La science reste un facteur vivant de la vie sociale seulement par une réciprocité entre l’esprit subjectif et l’esprit objectif.

On comprendra beaucoup dans l’évolution moderne de la sciences en la comparant à l’évolution de l’économie moderne, particulièrement du *capitalisme*. Car la science moderne est une capitalisation du savoir, qui montre tous les traits caractéristiques du capitalisme économique. Spéciale-

ment, elle repose sur un système compliqué de crédit; elle tend à remplacer toute qualité par des *quantités* (comme le capitalisme exprime toute valeur par les unités purement quantitatives de l'argent) et elle est un fait dynamique, et non pas statique, qui ne s'effectue que par le mouvement des transactions.

Des problèmes très intéressants de psychologie sociale sont posés par la *relation de la science à la religion* dans la société moderne. En prétendant remplacer la religion dans la vie sociale, la science doit s'acquitter de toutes les fonctions sociales de la religion. Nous en mentionnons la pratique magique, la sanction religieuse des institutions sociales et la création d'une cosmogonie. Nous comparons sous le point de vue de la psychologie sociale les résultats présentés par la science et par la religion. Enfin, nous entamons le problème de la *vérité* dans la science et dans la religion, sous le point de vue de la psychologie sociale.

MÜLLER-FREIENFELS

STUDIEN ZUR SOZIALPSYCHOLOGIE DER WISSENSCHAFT

(Referat)

Der Begriff und die soziale Funktion der Wissenschaft beruhen heute nur zu geringem Teile auf "*Wissen*" im psychologischen Sinne. Daneben sind das "*Forschen*" und das "*praktische Wirken*" ebenso wichtig, was sich in der dreigliedrigen Typik: "Gelehrter," "Forscher," "Praktiker" darstellt, die jeweils ganz verschiedene soziale Funktion haben. Die moderne Wissenschaft strebt immer mehr danach, sich zu *objektivieren*, zum "objektiven Geiste" im Sinne Hegels zu werden. In dieser Entwicklung besteht die Gefahr der Entpersönlichung der Wissenschaft. Sozialpsychologisch legendig bleibt die Wissenschaft jedoch nur als Wechselspiel zwischen dem subjektiven und dem objektiven Geiste.

Sehr aufschlussreich für das sozialpsychologische Verständniss der modernen Wissenschaft ist eine Parallele zwischen der Wissenschaft und der *modernen Wirtschaft*, speziell dem *Kapitalismus*. Die moderne Wissenschaft ist eine *Kapitalisierung des Wissens*, die alle Kennzeichen der wirtschaftlichen Kapitalisierung aufweist. Speziell ist sie wie diese auf *Kredit* gestellt; sie sucht wie die Geldwirtschaft alles Qualitative zu *quantifizieren* und ist kein statischer, sondern ein *dynamischer Tatbestand*, der nicht auf Besitz, sondern auf "Umsatz" beruht.

Besondere sozialpsychologische Probleme stellt das *Verhältnis der Wissenschaft zur Religion*. Wenn die Wissenschaft mit dem Anspruch auftritt, die Religion im Sozialleben ersetzen zu können, so ist zu prüfen, ob sie das vermag. Als die sozialen Funktionen der Religion gelten uns: Zauber, sakrale Weihung sozialer Einrichtungen und Schaffung eines Weltbildes. Wir wägen die Leistungen der Religion und der Wissenschaft in dieser Hinsicht ab, und kommen zuletzt auf das *Wahrheitsproblem*, das auch eine sozialpsychologische Seite hat, die für Religion wie Wissenschaft untersucht wird.

MÜLLER-FREIENFELS

SOME CHARACTERISTICS OF THE GOOD JUDGE OF PERSONALITY*

From the Psychological Clinic of Harvard University

PHILIP E. VERNON

A very large amount of work has been directed during the past decade toward the accuracy of estimates of intelligence, of emotions, and of personality traits from facial expression, usually through the medium of photographs. (The field is, indeed, so familiar, that there is no need to cite here the 30 to 40 references which might be cited). The generally accepted conclusion is that, under controlled conditions, such judgments are of very little value; the practice of appending photographs to application blanks and the haphazard interviews of candidates by untrained school superintendents or business men are often condemned as thoroughly unreliable. Though the writer believes that the research methods which have hitherto been applied (e.g., correlations of ratings of photographs with ratings by associates) hardly give the judges a fair chance, yet he does not intend to criticize these experiments in the present paper, or to discuss the conclusions which have been drawn from them. This report deals, instead, with a subsidiary aspect of the field which has been rather generally neglected, namely, that of individual differences in the ability to judge personality.

In one experiment, for example, 200 correlation coefficients were computed between rankings by 50 judges of 10 photographs on 4 traits and criterion rank orders as established by a number of tests and ratings. Though the average and median of these coefficients were practically zero, yet they ranged, for different judges, from as high an agreement as $+.83$ to as large a disagreement as $-.88 \pm .06$. Purely chance distribution of 200 coefficients would, of course, allow for the fact that some are greater, some less than zero. But whereas 50% should fall within $\pm 1 P.E.$, only $34\frac{1}{2}\%$ were actually found to do so. Again with chance distribution, 82.3%, 95.7%,

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and 99.3% would fall within ± 2 , 3, and 4 times the *P.E.*; the obtained distribution was 71%, 87.5%, and 93.5% respectively. Such results tend to show that some persons are capable of making judgments significantly superior to chance, even though their success may be offset by the poor judgments of other persons in an ordinary group of judges. The same supposition probably holds good in the field of ratings by a number of judges. For instance, in the tests numbered 31, 32, and 33, below, 144 sets of ratings were obtained, each based on an average of 19 judgments. The correlations with the criteria ranged from $+.90$ to $-.16$, mean $+.52 \pm .18$.

Thus the question arose: Are some judges always more successful than others, and, if so, what distinguishes the good judge of personality from the bad? The man in the street would at once answer the first part of this question in the affirmative, and he might suggest that persons such as novelists, dramatists, and women as contrasted with men are characteristically "intuitive." Experimental evidence, however, is conspicuous by its absence; the Allports and H. F. Adams are almost the only investigators to have approached the problem directly.

There are one or two relevant theoretical statements. The following quotation from Gross (10) is illuminating; it will be found to receive experimental confirmation below. "There is another group of conditions through which you may observe and judge men in general. The most important one is to know yourself as well as possible, for accurate self-knowledge leads to a deep mistrust with regard to others, and only the more suspicious with regard to others is insured, at least a little, against mistakes." G. Allport (5, 6) stresses two conditions which probably make for good judgments of others; he believes, first, that insight requires broad experience of human beings, and, secondly, that it is essentially an artistic process, not a matter of intellectual inference. Psychologists, he suggests, are often poor judges, owing to their overemphasis of the causal and analytic approach.

Possibly Buzby's (8) work supports the latter point, for he found that untrained observers were more successful than sophisticated psychologists in interpreting facial expressions from the Piderit model. Others have employed the Rudolf or Ruckmick photographs of stereotyped emotions as a measure of ability to judge facial expression. In their early paper on personality testing, the Allports

(4) based a test of "social intelligence" on such photographs. Though the ability to name the emotions failed to correlate with ratings on this trait, it showed some agreement with literary tendencies. Later F. Allport (3) reported a correlation of $+.45$ between the ability to identify the expressions and an early edition of the A-S test. No pronounced sex differences appeared either in Buzby's or in Allport's investigations, but Allport's male subjects required about twice as much time as his female subjects to make their judgments, an observation which is noted also by Valentine (15). Gates (9) and others have used the Ruckmick photographs as a test of "social perception," obtaining close interdependence with age levels. And Moss (14) included an analogous set of photographs in the first edition of the George Washington Social Intelligence Test battery. Moderate correlations were found with the other tests in this battery, and with abstract intelligence.

But if we take into consideration Landis's pertinent and well-known criticisms of the artificiality of most of these photographs of emotions, we would hardly expect the test to measure at all adequately the sundry and diverse traits with which it has been associated. For "social intelligence" apparently includes ability to get along with people in general, social technique or ease in society, knowledge of social matters, susceptibility to stimuli from other members of a group, as well as insight into the temporary moods or the underlying personality traits of friends and of strangers.

Rather more definite evidence is available with respect to the good rater of other people. We know that he must be well acquainted with the ratees, but not too intimate with them [cf. Knight (13)]; and we know that the more intelligent are better able to rate intelligence, etc.; i.e., that there is some relation between the possession of a trait and the ability to judge it. Goodness of self-estimation, we also know from Allports' (4) Hollingworth's (11) and Jackson's (12) work, correlates with the raters' "intelligence," "insight," "sense of humor," and negatively with "conceit." The most thorough investigation in this field, and one which is most closely akin to the present study, is that of Adams (1, 2). Applying rating methods among a number of small groups of subjects, he found that an individual may be good at rating others (i.e., he may agree with the composite opinion of others), but bad at rating himself. In fact, the good self-rater is found to be extroverted and sociable, a person who does not think much about himself; while

the good rater of others tends, on the contrary, to be narrow, egocentric, introverted, since he considers others impersonally. A serious flaw in this research is the fact that the criteria for determining both the goodness of the ratings and the personality traits of the good raters consisted themselves of sets of ratings. So that when Adams discusses goodness of rating self or others he really means conformity to group opinion; and it is impossible to tell to what extent halo effects may have distorted group opinion. By this technique we would naturally expect the poor judge of self to be "stupid, unsympathetic, lacking in courage, stingy, moody, lazy," etc., because these are undesirable traits which the average rater bestows on all those whom he dislikes, according to his general unfavorable impression. The unfortunate individual may actually be characterized by none of these traits, but if he rates himself accurately, he will obviously be found inaccurate as compared with the biased judgments of his associates. This criticism does not apply, of course, to the introverted traits of the good rater of others, though even here it is doubtful whether conformity to group opinion should be unhesitatingly identified with real insight into personality.

The objections to Adams' investigations are, perhaps, of more theoretical than practical weight. For the present writer, who was able to apply less subjective criteria in evaluating rating abilities and the personalities of the raters, arrived at results which resemble those of Adams. A consideration of this literature suggested to the writer the following guiding lines for his experimental investigation.

1. No single test of ability to rate or to judge facial expression is likely to supply an adequate index of insight into personality. Judgments of self and of others should be tested under as wide a variety of conditions as possible.

2. The criterion which determines the correctness of the judgments should be objective, as far as possible, avoiding the ambiguity and the bias of ratings. This principle applies also to the criterion against which the characteristics of the good and bad judge are established.

3. General intelligence, social or asocial and artistic qualities may be expected to appear in the personalities of the good as contrasted with the bad judges of personality. Many other factors are likely to be involved, but we can at least make a beginning with these.

THE TESTS

The *judges* were 48 male students, ranging from freshmen to seniors, and aged 16 to 23. None of the tests which were taken by the judges was found to have any appreciable correlation with age. The judges were probably a typical sample of the college as a whole, since they were unselected, except in two minor respects, namely:

1. They were obtained through the college Employment Bureau, and were paid at a regular rate for undergoing the tests.
2. They were included in the group only if they were well acquainted with at least six of the other members of the group.

Under such conditions, however, there would seem to be less selection than if, for example, a group of psychological graduate students, or a group of fraternity members, had been used (as is so often the case in psychometric investigations).

The judges came for eight periods of an hour each, usually at a week's interval. They were tested in small groups, from 1 to 20 at a time.

While some of the measures of ability to judge personality consisted of ratings by the judges of one another, many of the tests were based on the personalities of an entirely separate group of *subjects*, sophomores at another college, with whom none of the judges possessed any direct acquaintance. The present writer had, during the previous year, applied a large variety of personality tests to these subjects, and had collected a good deal of clinical material by means of personal contacts, interviews, and through other persons who knew them. On the basis of their test scores and ratings, full case studies had been drawn up, which may be claimed to possess a considerable objective validity. Thus when, for example, the judges were asked to rate the intelligence of 10 of these subjects from their photographs, the ratings were not merely compared with the results of a single intelligence test, or with associates' ratings, but with composite scores derived from the sum of four different test batteries and three entirely distinct sets of ratings. The validity of these composite scores for intelligence and other traits had been demonstrated by the internal consistency of the component tests and ratings.

In determining the intellectual, social, and artistic characteristics of the good and bad judges, a similar technique was adopted. A number of tests and ratings were applied to the judges and then

summed to give internally consistent batteries or composites for these three general traits. The following measures were obtained for all the judges. Many of the tests are standard publications, and need no detailed description. This order is, of course, not the order in which they were performed; several kinds of tests were mixed at each session.

A. Intelligence

1. A series of timed intelligence tests which had been built up from a number of the more difficult intelligence batteries, and applied previously by the writer to over 500 superior adults, undergraduates, and English schoolboys. The battery included Analogies, Proverbs, Information, and modified Completion and Vocabulary tests.
2. Average grades throughout the college year (1930-1931), obtained through the Dean's office.

B. The George Washington Social Intelligence Test (revised edition)

3. 1. Judgment in Social Situations.
4. II. Recognition of Emotions from Literary Quotations.
5. III. Observation of Human Behavior, or knowledge of social motives.
6. IV. Memory for Names and Faces.
7. V. Sense of humor, and of the ridiculous.

C. Extroversion-Introversion

8. The Neymann-Kohlstedt paper-and-pencil test.

D. Artistic Tendencies

9. The McAdory Art Judgment Test.
10. The Abbott and Trabue Exercises in Judging Poetry, Series X.
11. A test of the appreciation of literary qualities, constructed by the Yale University Department of Personnel Study.
12. A questionnaire on various aspects of musical appreciation and performance which had been developed by the writer to give a quantitative index of "musical-ness."
13. Aesthetic Values, as measured by the Allport and Vernon "Study of Values" (7). Scores were also obtained for the other five values included in this test (Theoretical, Economic, Social, Political, Religious). But they were of no importance for the present investigation, except in so far as they served as a criterion against which No. 24 (below) was validated.

E. Rorschach Inkblots

A full account of this test will be published separately. It was applied individually, and the answers were classified strictly in accordance with Rorschach's system. Most of the following measures are claimed by its author to bear on artistic, intellectual, and other personality traits.

14. *F%*. Proportions of sharply seen forms in the answers given by the subjects.
15. *B*. Number of movement (*Bewegung*) answers.
16. *Fb*. Number of color (*Farbe*) answers.
17. *O*. Number of original answers. In the present study the *O* answers were divided by the number of *T* (animal) and *V* (common) answers. *G* and *D* (whole or part) answers were also measured, but were found to give no significant agreements with any of the other tests; they are therefore omitted from further consideration.

F. Ratings by the Judges of One Another

Each judge rated, and was rated by 6 to 10 other judges, on seven traits (Nos. 18-24). There is no need to reproduce here the instructions nor the objective definitions of these traits. In order to obtain numerically comparable ratings on all the judges, an overlapping scheme was applied. No two judges rated exactly the same group of ratees, and no two ratees were rated by exactly the same group of judges.

18. General, abstract intelligence.
19. Social "technique."
20. Insight into personality.
21. Extroversion-introversion.
22. Sense of humor.
23. Musical-ness.
24. General artistic values and interests. Ratings were also obtained on the other five values (cf. No. 13, above).

G. Goodness of Self-Rating

Nos. 25 to 33 are not separate "tests," but are measures based on the results of Nos. 1 to 24.

25. Goodness of rating on the six values, as compared with the group judgment (i.e., No. 24).
26. Goodness of rating on the six values as compared with the test

scores obtained by the subjects on the Study of Values (No. 13). These two measures will be termed, loosely, the "subjective" and "objective" goodness of self-rating on values, respectively.

27. "Subjective" goodness of self-rating on the 6 traits, Nos. 18-23, as compared with the group judgment.
28. "Objective" goodness of ratings of self on Nos. 18, 21, and 23. Nos. 18 and 21 were compared with the composites of test scores for intelligence and sociality, as mentioned above; No. 23 was compared with the musical questionnaire scores, No. 12.

H. Goodness of Ratings of Others; i.e., Ability to Judge Personalities of Friends and Associates

29. "Subjective" goodness of rating others' values, as compared with group judgment.
30. "Objective" goodness of rating others' values, as compared with test scores (cf. No. 26).
31. "Subjective" goodness of rating others on traits Nos. 18, 20, and 23, as compared with group judgment.
32. "Subjective" goodness of rating others on traits Nos. 19, 21, and 22, as compared with the group judgment.
33. "Objective" goodness of rating others on traits Nos. 18, 21, and 23, as compared with the trait composites (cf. No. 28).

I. Judgments of the Personalities of Strangers

34. Emotions from facial expression. Nine of the Rudolf faces were presented, with 18 names of emotions from which the appropriate names were to be selected.
35. Identifying personalities. Twelve photographs of prominent people were reproduced from the cover pages of the periodical *Time*. The vocations of these people were listed in a different order (e.g., a U. S. senator, a prominent financier, a Near-East premier, a modern playwright, etc.); the subjects had to assign each photograph to the appropriate name. This test is, frankly, a repetition of Rice's work on stereotypes, but with new material.
36. Ranking ten photographs of the subjects (described above) for "Intelligence, Sociality, Efficiency, Artistic-ness." These traits, which had been previously measured by a variety of tests and ratings, were more fully and objectively defined in the instructions given to the judges.

For the remaining eight tests, five different subjects from the same group were employed.

37. Matching of heads and bodies. Two sets of photographs, taken on different occasions, were provided. In one set only the heads were shown, in the other set, the bodies were shown without the heads. The two sets had to be fitted together or matched.
38. Writing character sketches from photographs. The missing heads were then added to the bodies, so that two photographs of each subject were available. The judges chose any two of the pairs of photographs and wrote entirely uncontrolled personality sketches of what they imagined the subjects to be like. These sketches were scored by the experimenter according to their resemblance to his previous clinical studies and test scores.
39. Assigning traits to photographs. Instead of ranking the photographs on single traits, a list of 30 different traits was prepared, in random order, 6 of which were known to apply particularly aptly to each of the 5 subjects. Judges had to sort the 30 traits into the 5 appropriate groups.
40. "Congruence" test. A number of groups of objective incidents had been collected for the five subjects, including some of their test scores, quotations from essays written by them, their probable vocations, their extra-curricular activities, etc. In each group, the five incidents were described or reproduced in a different order. The judges had to pick out, from each group, which incident "went with" incidents from other groups, i.e., to sort all the incidents into five sets, in such a way that all the incidents in any one set formed a consistent or congruent picture of a single personality. This test was given a week or more later than No. 39, and the photographs were not provided, so that the judges can have retained only a faint recollection of the features in making these judgments of the congruence of characteristic incidents. At a still later session the photographs were presented together with concise case studies of each subject, and some further matching tests were performed.
41. Matching of handwritings. The judges were shown specimens of the subjects' scripts to assign to the appropriate photographs plus case studies.
42. Matching of designs. Each subject had made up a free design

or picture from pieces of colored card. These were reproduced, and were matched by the judges with the personalities of the subjects.

43. Matching of character sketches. Each judge was given copies of six character sketches previously written by other judges (No. 38). Each set was arranged to be of approximately equal aptness. The judge had to match these sketches with the personalities (photos and case studies) of the subjects.
44. Since each judge's sketches were thus examined by six other judges, an additional score was obtained of his "intuitive" ability from the number of times his sketches were correctly recognized or matched by his fellows. Allowance was made, in scoring, for the unequal abilities of the judges who attempted the recognitions.

The details of the scoring and the accuracy of the judges' results on the various tests need not be considered here, since they would only distract from the topic of the present paper. Each of the 44 measures was correlated with the other 43 by the product-moment method. When correlations were desired between combinations of two or more tests, the Spearman method of sums was applied.

THE RESULTS

The tests in the above list from No. 1 to No. 24 showed, roughly, the expected interrelationships. For instance, most of the George Washington tests correlated significantly with one another, with intelligence tests and ratings, and with sociality or extroversion tests and ratings. Only Test IV (No. 6), Memory for Names and Faces, gave poor results. The various measures in the artistic field, including the Rorschach scores, showed, in general, small positive interrelations, except for the McAdory Art Judgment Test, which correlated negligibly or even negatively with every other criterion of artistic tendencies. On the basis of all the separate coefficients, the three required composite or internally consistent "group factors" were built up to represent as nearly as possible the general traits of intelligence, sociality-asociality, and "artistic-ness," in their commonly accepted sense.

Turning now to the tests of ability to judge personality, we find an entirely different state of affairs. There is absolutely no meaningful or consistent interrelationship between these 20 tests, no general factor of "intuitive-ness." If we include No. 20 (the ratings

on insight) with Nos. 25-44, there are 210 intercorrelations of which only 16 positive and 4 negative coefficients are more than three times their *P.E.'s*. The total average inter-*r* is $+.033$. Nor can ability to judge personality be split into a number of more or less specific habits, for tests which employed similar situations scarcely overlap any more than entirely unlike tests. For instance, Nos. 31 and 32, representing "subjective" goodness of rating others on two different sets of traits, only agree to $+.05$. These two measures resemble most closely the tests on which Adams, Allport, Hollingworth, *et al.*, have based their conclusions as to the good judge of personality. "Subjective" and "objective" goodness of ratings naturally agree rather more closely (i.e., 25 with 26, 27 with 28, 29 with 30, 31 and 32 with 33), since the subjective and objective criteria against which these ratings were evaluated overlapped to a large extent.

TABLE 1

Tests of ability to judge personality	Trait composites for		
	Intel- ligence	Social- ity	Artistic- ness
25. Self-rating on values, "subjective"	$+.19$	$-.05$	$+.05$
26. Self-rating on values, "objective"	$+.17$	$+.21$	$+.05$
27. Self-rating on traits, "subjective"	$+.16$	$+.05$	$-.09$
28. Self-rating on traits, "objective"	$+.30$	$+.15$	$.00$
29. Rating of others on values, "subjective"	$+.05$	$+.04$	$+.12$
30. Rating of others on values, "objective"	$+.10$	$+.17$	$+.16$
31. Rating others on intelligence, insight, and musical-ness, "subjective"	$-.13$	$-.04$	$+.02$
32. Rating of others on social traits, "subjective"	$-.03$	$+.09$	$+.01$
33. Rating of others on intelligence, sociality, and musical-ness, "objective"	$-.24$	$-.23$	$+.09$
34. Emotions from facial expression	$+.27$	$-.03$	$+.36$
35. Identifying personalities	$+.22$	$+.05$	$+.15$
36. Ranking ten photographs	$+.29$	$+.07$	$+.07$
37. Matching heads and bodies	$+.18$	$+.09$	$+.19$
39. Assigning traits to photographs	$+.20$	$.00$	$+.27$
40. Congruence	$+.12$	$-.01$	$+.17$
41. Matching scripts with personalities	$+.06$	$-.06$	$+.03$
42. Matching designs with personalities	$+.24$	$+.06$	$+.31$
38. Character sketches from photographs (scored by experimenter)	$+.05$	$-.10$	$-.04$
43. Recognition of others' sketches	$-.14$	$-.13$	$+.02$
44. Character sketches recognized by others	$-.11$	$-.29$	$-.04$

After spending much time in useless attempts at factor analysis, it was decided to group the tests into logically related aggregates, instead of into statistically related composites, as follows:

1. Four tests of goodness of self-rating, Nos. 25-28.
2. Five tests of goodness of rating others, Nos. 29-33.
3. Eight tests of ability to judge the personalities of strangers, Nos. 34-37, and 39-42.
4. Nos. 38, 43, and 44, i.e., those tests based on uncontrolled writing of character sketches from photographs, were treated separately, since they showed rather closer interrelations than the other eight tests of this type.

The main results of the investigation may now be presented in two tables. The first gives the correlations for each test of judging ability (25-44) with the three trait composites or group factors. The second table gives the correlation of the four aggregates of tests of judging ability with each of the first 24 tests. The one table is complementary to the other. Correlations of .10 are equal to their *P.E.'s*; correlations of .27 are three times, and correlations of .41 are five times, their *P.E.'s*.

Here we get much better evidence of uniformity; and we can draw some fairly definite conclusions as to the personalities of those judges who are good at the separate judging tests, and at the aggregates of judging tests.

1. The good self-raters are characterized by sense of humor (both test and ratings); and there are small positive correlations with most of the other tests or ratings that bear on sociality, insight, etc. Good self-raters, moreover, possess superior abstract intelligence. They are neither superior nor inferior in general artistic level.

2. The good raters of friends and associates are quite different, showing slight tendencies to introversion on some tests. And though the agreement is too small to be significant, yet they would certainly seem to be less social and intelligent than the good self-raters. On the other hand, they are more artistic than the self-raters. These results fall in with those of Adams, though the characteristics of the good judges are much less distinct than in his investigation.

3. Every one of the eight tests of judging strangers correlates positively with the artistic and with the intelligence factors, and the general run of coefficients is higher and more consistent than among the rating tests. If the eight tests combined are correlated with the sum of 17 artistic and intelligence tests (Nos. 1-4, 6, 10-18, 20, 23,

24), a correlation of $+0.60$ is obtained. All the measures are here weighted equally; no doubt a higher multiple coefficient could be found between the best artistic and intelligence tests, on the one hand, and judgments of personalities of strangers, on the other hand. The size of the group of judges did not, however, warrant such elaborate statistical treatment.

4. It is difficult to suggest any explanation as to why the three character sketch tests should differ from the previous eight. Here the asocial judges are distinctly better, while the other tests showed

TABLE 2

Tests of intellectual, social, and artistic traits	Aggregates of tests of ability to judge personality			
	Self- ratings	Rating friends	Judging strangers	Charac- ter sketches
1. Abstract intelligence	$+0.25$	-0.06	$+0.31$	$+0.12$
2. Average scholastic grades	$+0.24$	-0.08	$+0.16$	-0.15
3. George Washington. Social Situations	-0.14	$+0.10$	$+0.36$	-0.19
4. Emotions from literary quo- tations	$+0.20$	$+0.13$	$+0.25$	-0.14
5. Observation of human behavior	$+0.01$	$+0.07$	-0.32	$+0.11$
6. Memory for names and faces	$+0.08$	$+0.04$	$+0.44$	-0.02
7. Sense of humor	$+0.24$	$+0.04$	$+0.05$	$+0.08$
8. Neymann-Kohlstedt, E-I test	$+0.01$	-0.13	-0.15	-0.21
9. McAdory art judgment	-0.15	$+0.20$	-0.07	$+0.06$
10. Abbott and Trabue, poetry	$+0.11$	-0.24	$+0.22$	-0.04
11. Appreciation of literary quali- ties	$+0.16$	-0.15	$+0.24$	$+0.04$
12. Musical questionnaire	-0.11	$+0.24$	$+0.06$	-0.09
13. Aesthetic values (test)	-0.12	$+0.08$	$+0.23$	-0.03
14. Rorschach <i>F%</i>	$+0.05$	-0.25	$+0.15$	-0.23
15. Rorschach <i>B</i>	$+0.18$	$+0.13$	$+0.28$	$+0.12$
16. Rorschach <i>Fb</i>	$+0.07$	$+0.09$	$+0.27$	$+0.19$
17. Rorschach <i>O</i>	$+0.16$	$+0.33$	$+0.21$	-0.02
18. Ratings on abstract intelli- gence	$+0.33$	$+0.02$	$+0.40$	-0.20
19. Social technique	$+0.10$	-0.11	$+0.15$	-0.18
20. Insight	$+0.39$	$+0.06$	$+0.11$	-0.18
21. Extroversion	$+0.02$	$+0.09$	$+0.02$	-0.18
22. Sense of humor	$+0.38$	$+0.08$	$+0.02$	-0.11
23. Musical-ness	-0.25	$+0.06$	$+0.28$	-0.14
24. Aesthetic values	-0.08	$+0.14$	$+0.31$	-0.16

no marked positive or negative relation with sociality. These three measures give negative coefficients with practically any test that has any social tinge, while there is no appreciable correlation with artistic or intelligence tests.

DISCUSSION OF RESULTS

The remarkable lack of agreement between different tests of judging personality suggests that, in an ordinary sample of the population, we are not justified in assuming the existence of a general trait of "intuitive ability." Not only does the accuracy of the judgments depend on the person who is judged (whether the judge himself, an intimate friend of the judge, an acquaintance, or a complete stranger seen for the first time), but also upon the kind or content of the judgments, and on the conditions under which the judgment is made. The relation between the particular judge and the particular person who is judged is unique; it is not likely to be duplicated in the course of further contacts with fresh people. In other words, this whole field of social relations is too complex either to be summed up in a few stereotyped names such as insight, intuition, social intelligence, social perception, etc., or to be covered by the narrow categories of psychometric tests. Since each successful judgment is a thing in itself, quite different from other judgments, we cannot accept the stock explanation which would ascribe these results to the operation of numerous specific habits. For a judgment certainly does not seem to be a habitual response, learned on the basis of past experience, to be resuscitated under similar conditions in the future. Unfortunately, the writer was unable to obtain figures on the reliabilities of the various tests, and could discover scarcely any relevant data in the literature. Adams finds that the repeat reliability of goodness of self-rating, over a few months' interval, is $+ .70$, of goodness of rating others $+ .55$. But he believes that memory factors exerted some influence upon the second set of ratings, so that the internal consistency of such rating abilities may be distinctly lower than these figures. Thus the permanence of the judgments on a group of subjects by a group of judges seems to be moderately high. The agreement among the judges with respect to the subjects is higher (the corrected correlations, in No. 36, between the rankings of 10 photographs by two groups of 24 judges, ranged from $+ .80$ to $+ .93$ for the four traits). But the agreement between the ability to judge two personalities on several traits, or to rate several personalities on

two different traits, appears to be far lower (the split-half reliability of the ability to rank the 10 photographs was only $+.22$). A judge may successfully judge A's "intelligence," but fail on B's; or he may rate A's and B's "sociality" correctly, but give very poor ratings on their "efficiency." His judgments depend on his whole past experience with A and B, and with other people who were like or unlike them in respect to intellectual, social, and efficient activities, also on the total situation at the moment of judging.

Admittedly, some (though not all) of the tests which were applied in the present study were too short to afford high reliabilities. Further tests might be given under the same or under still different conditions (for instance, there has been very little work so far on the ability to judge subjects who are present in person, actually seen by the judges). But in all probability they would fail to correlate highly with the tests used here. Thus it is not possible to discuss the characteristics of the good or bad judge of personality in general. Since the judging tests lack consistency, we cannot predict from the results to other similar situations. And yet the comparative uniformity of agreement between the groups of tests and the three personality composites suggests that further tests might manifest analogous connections with artistic, intellectual, and social criteria. With all due caution we might draw quite an important practical conclusion, namely, that any persons whose vocation largely depends on judging people, both strangers and acquaintances (e.g., psychiatrists, personnel managers, or college tutors), should be both intelligent and artistically inclined. Probably also, for the reasons which Gross and Adams have stated, they should themselves be somewhat introverted, in the conventional sense of the word, though the evidence is less definite here.

SUMMARY

Although ratings of subjects and judgments of personality from photographs may, on the average, be highly inaccurate, yet there exist considerable individual differences in the "intuitive" abilities of different judges or raters. Twenty measures of ability to judge personality were obtained for 48 judges, together with a number of measures of intellectual, social-asocial, and artistic tendencies. An extreme absence of consistency was found between the judging tests; the accuracy depends not only on the subject who is judged, but also on the content of the judgment and on the conditions under which

the judgment is given. However, the personalities of the good and bad judges manifested fairly uniform characteristics. Good judges of self are more intelligent and possess more sense of humor than the average. Good judges of friends and associates are less socially inclined and less intelligent, but more artistic than good self-judges. Good judges of strangers are distinctly more artistic and intelligent than the average, and, under certain conditions, more asocial.

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St. John's College
Cambridge, England

QUELQUES TRAITS DU BON JUGE DE PERSONNALITÉ

(Résumé)

On sait généralement que les estimations des traits de personnalité par les juges inexpérimentés sont très inexactes, et ne valent presque rien quand les jugements sont basés sur des photographies. Il existe cependant des différences individuelles considérables dans la capacité soi-disant "intuitive" de différents juges. Pour étudier la nature de ces différences, l'auteur de cet article a fait subir vingt tests ou mesures de capacité à juger la personnalité dans diverses conditions à 48 juges (étudiants universitaires). On a donné aussi nombre de mesures de tendances intellectuelles, sociales-non sociales, et artistiques à ces juges.

On a trouvé de très petites corrélations entre les tests individuels de jugement, ce qui montre une absence extrême de conséquence. L'exactitude d'un jugement dépend probablement non seulement du sujet jugé, mais aussi du contenu du jugement, et des conditions dans lesquelles on le fait. Cependant les personnalités des juges exacts et inexacts ont manifesté des traits différentiels assez uniformes. Les bons juges de leurs propres personnalités sont en somme plus intelligents et possèdent un plus grand esprit d'humour que les personnes de capacité moyenne. Les bons juges de leurs amis et de leurs connaissances sont moins socialement inclinés et moins intelligents, mais plus artistiques que les bons juges de soi. Les bons juges des inconnus sont distinctement plus intelligents et artistiques que les personnes de capacité moyenne, et, dans certaines circonstances, moins sociaux.

VERNON

EINIGE EIGENSCHAFTEN DES TÜCHTIGEN PERSÖNLICHKEITS-
BEURTEILERS

(Referat)

Es ist allgemein erkannt, dass Bestimmungen (ratings) von Persönlichkeitseigenschaften durch unerfahrene Richter sehr ungenau sind, und dass die Bestimmungen, wenn sie an Photographien gemacht werden, fast wertlos sind. Es bestehen nichtsdestoweniger beträchtliche individuelle Unterschiede zwischen verschiedenen Richtern in Bezug auf die sogenannte "Intuitionsfähigkeit." Um das Wesen dieser Unterschiede zu erforschen, unterwarf der Verfasser 48 Studenten als Richtern 20 Prüfungen oder Massstäben der Fähigkeit, Charakter unter verschiedenen Umständen zu beurteilen. Es wurden ebenfalls an diesen Richtern mehrere Prüfungen der intellektuellen, sozial-assoziativen und artistischen Neigungen gemacht.

Man fand sehr niedrige Korrelationen zwischen den einzelnen Urteilungsprüfungen. Es bestand also eine ausgeprägte Abwesenheit der Übereinstimmung. Die Genauigkeit eines Urteils hängt wahrscheinlich nicht nur von der besonderen Versuchsperson ab, die beurteilt wird, sondern auch vom Inhalt des Urteils und von den Umständen, unter denen es gefällt wird. Die Persönlichkeiten der guten und schlechten Richter erwiesen aber ziemlich gut übereinstimmende, differenzierende Eigenschaften. Gute Beurteiler des eigenen Charakters sind im grossen Ganzen intelligenter und haben einen besser entwickelten Sinn für Humor als die Richter im Durchschnitt. Gute Beurteiler der Freunde und Gefährten sind weniger sozial angelegt und weniger intelligent, aber artistischer, als die guten Selbst-Beurteiler. Gute Beurteiler von Fremden sind bestimmt intelligenter und artistischer, als der Durchschnitt, und, unter gewissen Umständen assozialer.

VERNON

STEREOTYPES*¹

From the Psychological Laboratories of the University of Minnesota

OSCAR F. LITTERER

Inductive studies of attitude have been made from different points of view. Rice (3, pp. 51-70) has attempted to secure statistical evidence for the existence of stereotypes or of what Lippman (2, pp. 79-130) more popularly named "pictures in our heads." To do this, Rice obtained a series of photographs of men engaged in certain professions, or more correctly speaking, he was able to assign each photograph to a social type or function. In his study, college students and members of a Vermont Grange, acting in the capacity of observers, attempted to select the social type represented by each photograph.

The criteria of stereotypes used by Rice were: (1) the number of correct identifications exceeding a chance value and (2) the index of departure from expectation. On these bases the conclusions were made that stereotypes can be statistically distinguished for both groups, but that the Grange members showed a greater concentration of opinion.

It seems desirable to repeat this type of investigation, even though different photographs must be used, if only because the number of uncontrollable variables in the photographs must be large. If repetition of a similar set of conditions yields results comparable to those obtained by Rice, then we may conclude that the variables either have a constant effect or that they exert only a negligible effect upon the judgment process. In addition to affording a check, this present study concerns itself with the questions of whether or not stereotypes issue out of a general experience background or out of specific training.

The photographs used in this study were secured from the magazine *Time*. They were of uniform size, 2¼ by 3 inches, and were

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¹I wish to acknowledge my indebtedness to Professor Charles Bird who suggested the problem and who undertook a critical reading of the manuscript.

pasted on pieces of cardboard, 4 by 5 inches. Photographs of ten men represented the following social types or functions; college president, newspaper editor, political boss, U. S. senator, bolshevik, member of royalty, financier, bootlegger and gunman, actor, and humorist. The following social types or functions were represented by photographs of eight women: prima donna, member of royalty, politician, bolshevik, actor, lawyer, university professor, and newspaper woman. These photographs, together with a list of the professions or social functions symbolized, were submitted to the observers in a manner calculated to minimize the influence of position in a series.

Immediately preceding the examination of the photographs, each observer was told:

"This is a test to discover how well you can match a series of photographs with a list of professions or social types. You are to examine each photograph separately and, after making a judgment about the social type you think it represents, you are to put the number of the photograph in the parenthesis beside its social type or function. For example, you know one picture portrays a college president. Your problem is to identify him correctly and to indicate your choice by a number placed in its appropriate parenthesis. You are at liberty to change your judgment as you continue to make comparisons among photographs. There is no time limit."

University students and business men acted as observers. There were 28 university men, 72 university women, and 50 business men. The student group consisted of 32 graduate students and 68 undergraduates.²

The results are summarized in tabular form. Table 1 shows the ratings made by university men. For example, 11 university men identified the college president correctly, 3 students identified him as a newspaper editor, and one student identified him as a political boss. The total number of correct identifications made from the photographs of both men and women was 185, when only 56 correct identifications could be expected by chance. After allowing for chance selections, we find 129 correct identifications out of a maximum number of 504, or 25.5%. Apparently, other than chance variables operated. May we not assume that these variables were

²I am indebted to Miss Eve Mintzer who gathered data from 50 university women in fulfillment of a project in a psychology course.

TABLE 1

IDENTIFICATIONS BY 28 UNIVERSITY MEN

Identification from photographs of the social types or functions of ten men, when the ten social types were known to the observers

Person pictured	Identified by the university men as									
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. College president	11	3	1	5	0	3	0	0	0	5
2. Newspaper editor	6	5	5	3	0	1	3	0	1	4
3. Political boss	4	5	7	6	0	1	1	0	1	3
4. U. S. senator	4	9	5	6	1	1	0	0	1	1
5. Bolshevik	0	1	0	0	10	0	7	1	8	1
6. Member of royalty	2	0	4	0	0	17	5	0	0	0
7. Financier	1	5	6	7	0	0	7	0	0	2
8. Bootlegger and gunman	0	0	0	0	0	0	1	27	0	0
9. Actor	0	0	0	0	12	1	0	0	13	2
10. Humorist	0	0	0	1	5	4	4	0	4	10

Identifications from photographs of the social types or functions of eight women, when the eight social types were known to the observers

Person pictured	Identified by the university men as							
	1.	2.	3.	4.	5.	6.	7.	8.
1. Prima donna	1	3	0	0	2	18	3	1
2. Member of royalty	1	6	0	0	5	0	8	8
3. Woman politician	0	2	10	0	1	8	3	4
4. Bolshevik	1	0	1	26	0	0	0	0
5. Actress	9	0	1	1	11	1	0	5
6. Lawyer	5	10	5	0	5	0	0	3
7. University professor	0	3	6	1	1	0	14	3
8. Newspaper woman	11	4	5	0	3	1	0	4

stereotypes and that they were responsible for raising the judgments above chance?

Not all photographs, however, were assigned with equal success to their proper social categories. Only one university man failed to identify correctly the bootlegger and gunman, whereas the newspaper editor was appropriately selected by only five university men—two more correct choices than could be expected by chance. These differences in the accuracy of judgments probably reflect the extent to which cues obtained from manner of dress, facial expressions, and general carriage exert their influence. Similar differences in judgments exist when men select social types for the photographs of women, for we find 26 men identifying the woman bolshevik correctly. The coarse dress probably distinguished this woman from those women bedecked with modern clothes, furs, and articles of dis-

TABLE 2

IDENTIFICATIONS BY 72 UNIVERSITY WOMEN

Identifications from photographs of the social types or functions of ten men, when the ten social types were known to the observers

Person pictured	Identified by the university women as									
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. College president	24	3	1	21	5	2	1	0	1	14
2. Newspaper editor	11	7	7	8	6	7	19	0	0	7
3. Political boss	0	22	9	7	5	4	9	6	4	6
4. U. S. senator	7	19	13	14	2	0	7	7	1	2
5. Bolshevik	7	4	7	1	9	7	7	7	22	1
6. Member of royalty	1	0	6	1	1	38	16	3	1	5
7. Financier	12	6	17	10	7	3	9	1	1	6
8. Bootlegger and gunman	0	1	1	1	3	1	1	47	17	0
9. Actor	7	3	6	1	32	5	3	0	9	6
10. Humorist	3	7	5	8	2	5	0	1	16	25

Identifications from photographs of the social types or functions of eight women, when the eight social types were known to the observers

Person pictured	Identified by the university women as							
	1.	2.	3.	4.	5.	6.	7.	8.
1. Prima donna	17	3	1	0	9	23	17	2
2. Member of royalty	2	19	0	5	19	3	15	9
3. Woman politician	9	8	21	2	1	12	14	5
4. Bolshevik	0	1	3	50	0	1	0	17
5. Actress	17	4	0	1	28	13	2	7
6. Lawyer	4	17	13	5	5	14	3	11
7. University professor	8	9	18	5	1	2	18	11
8. Newspaper woman	15	11	16	4	9	4	3	10

play. In sharp contrast, the prima donna was identified by 18 university men as a lawyer, and as a prima donna by only one observer. It seems likely that the bodily proportions of each of these two women contributed markedly to the frustration of accurate judgments. The woman lawyer could be classified as an exaggerated "Junoesque" type and the prima donna as an asthenic type. Since the lawyer fits neatly into the picture or stereotype of the prima donna, so important a cue as a music case under the arm of the actual prima donna is inadequate to compel proper judgment.

Similar results were obtained from the 72 university women. A total of 368 correct identifications were made from the photographs of both men and women, or 224 correct identifications above chance out of a maximum number of 1296. The advantage was, therefore, 17.2% above chance. It may be important to note that the univer-

TABLE 3

IDENTIFICATIONS BY 50 BUSINESS MEN

Identifications from photographs of the social types or functions of ten men, when the ten social types were known to the observers

Person pictured	Identified by the business men as									
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. College president	19	3	3	10	0	1	6	0	0	8
2. Newspaper editor	10	8	6	6	5	0	7	0	3	5
3. Political boss	5	5	11	9	4	2	9	0	1	4
4. U. S. senator	7	18	9	13	0	0	2	0	0	1
5. Bolshevik	0	3	3	0	13	5	8	3	15	0
6. Member of royalty	1	3	1	0	2	29	6	0	0	8
7. Financier	8	5	13	11	0	4	6	0	0	3
8. Bootlegger and gunman	0	0	0	0	0	1	1	47	1	0
9. Actor	0	1	2	0	18	1	2	0	19	7
10. Humorist	0	4	2	1	8	7	3	0	11	14

Identifications from the photographs of the social types or functions of eight women, when the eight social types were known to the observers

Person pictured	Identified by the business men as							
	1.	2.	3.	4.	5.	6.	7.	8.
1. Prima donna	9	5	1	0	11	14	6	4
2. Member of royalty	2	18	1	1	10	4	6	8
3. Woman politician	1	2	11	0	2	21	8	5
4. Bolshevik	1	2	3	43	1	0	0	0
5. Actress	10	2	9	0	15	1	0	13
6. Lawyer	4	10	10	3	3	7	4	9
7. University professor	5	9	4	2	3	1	25	1
8. Newspaper woman	18	2	11	1	5	2	1	10

sity women expressed the opinion that in assigning photographs to social types or functions they depended largely upon such cues as the kind of clothing worn, the manner of combing the hair, and the physical features of the individuals to be identified.

Turning now to a consideration of the judgments of business men, we may observe that they live in a different environment from that of university students, and that business men believe their work fosters the development of stereotypes or "preconceived mental pictures." Yet, in spite of these two factors, business men did not assign the photographs with any greater success to their appropriate social types or functions than did the university men. The number of correct identifications above chance was 217 out of a maximum number of 900 or 24.1%—approximately 1% below the university men.

In the previous analysis, only the correct identifications have been used as a criterion of stereotypes. A second criterion is the index of departure³ from expectation. This statistical device denotes the concentration of opinion. As Rice (3, p. 61) puts it, it is "actually a coefficient of variation, based upon a mean deviation." An index of zero denotes the operation of chance factors, whereas the more the index exceeds zero, the more concentrated is the reflected opinion.

The average index of departure from expectation proved to be the highest for the university men. The average index for university men, university women, and business men is 1.033, .750, and .887, respectively. The difference seems to suggest a higher concentration of opinion among the university men than among the other two groups. Business men, likewise, have a slightly higher index than university women, but the difference is too small to justify a belief that opinion is concentrated in the one group more than in the other.

Chance selection, as a matter of fact, plays a part in the magnitude of the index of departure as well as in the number of correct identifications. It was thought necessary, therefore, to determine whether the degree of concentrated opinion is a result of the influence of stereotypes above a chance selection or an outcome only of the latter. The statistical measure used for this purpose was chi square.⁴ If the degree of concentrated opinion were an outcome only of chance, the distribution of the identifications from a photograph would approximate a straight line because each social type or function would be identified with equal success. The amount of deviation between the actual distribution of the identifications and the theoretical one denotes the degree of influence which variables, other than chance, had in this investigation. Since there were 10 photo-

³The index of departure is derived as follows: the college president was identified by the university men as a college president 11, newspaper editor, 3, political boss 1, U. S. senator 5, bolshevik 0, member of royalty 3, financier 0, bootlegger and gunman 0, actor 0, and humorist 5. On the basis of chance 2.8 identifications would be expected in each social type or function. The differences between chance and the actual identifications are, respectively, 8.2, .2, 1.8, 2.2, 2.8, .2, 2.8, 2.8, and 2.2. The sum of the deviations from chance are 26. The chance number is derived on the basis of the total number of observers. For this reason the sum of the deviations from chance is divided by the total number of observers, a quotient is obtained which is the index of departure from expectation.

⁴Chi square was computed according to the formula given in *Statistical Methods for Students in Education* by Karl J. Holzinger (1, pp. 245-248).

TABLE 4

INDICES OF DEPARTURE FROM EXPECTATION

The index of departure from expectation in case of identification of ten photographs of men by university men, university women, and business men

Person pictured	University men	University women	Business men
College president	.928	1.038	.920
Newspaper editor	.657	.455	.480
Political boss	.785	.511	.560
U. S. senator	.914	.677	1.080
Bolshevik	1.185	.461	.840
Member of royalty	1.257	1.100	1.120
Financier	.985	.533	.720
Bootlegger and gunman	1.728	1.377	1.680
Actor	1.385	.738	1.160
Humorist	.928	.761	.800

The index of departure from expectation in case of identification of eight photographs of women by university men, university women, and business men

Prima donna	1.035	.833	.610
Member of royalty	.928	.722	.690
Woman politician	.825	.555	.850
Bolshevik	1.607	1.361	1.470
Actress	1.035	.861	.880
Lawyer	.785	.527	.440
University professor	.928	.555	.860
Newspaper woman	.714	.444	.810

graphs of men, a chi square of 13⁵ may be considered as a maximum deviation still explainable wholly in terms of chance variables. All of the chi squares from these photographs, as is shown in Table 5, were significantly above this limit. The same is relatively true from the photographs of the women. There were two photographs less in this group, therefore, a chi square of 10 instead of 13 should be taken as the maximum deviation expected by chance. Since all of the chi squares are above the defined limits, the degree of concentrated opinion probably reflects the influence of stereotypes.

As a part of the original purpose of this study, we determined the amount of agreement shown by the three groups in regard to the rank order of the indices. The extent of this agreement should serve as a basis for determining whether stereotypes develop out of

*The meaning of the deviations between the actual distributions of the identifications and the theoretical one was obtained by using Pearson's table XII, which is partly reprinted in Holzinger's book p. 248.

TABLE 5

The deviations between the actual distributions of the identifications of ten photographs of men and the theoretical one represented in terms of chi square

Person pictured	University men	University women	Business men
College president	39.82	102.13	66.00
Newspaper editor	15.52	36.01	18.80
Political boss	21.24	42.43	24.00
U. S. senator	29.80	50.45	75.60
Bolshevik	49.11	42.95	52.00
Member of royalty	91.26	174.34	141.20
Financier	30.54	31.57	38.00
Bootlegger and gunman	232.70	276.83	392.40
Actor	85.54	104.37	98.80
Humorist	34.11	66.07	42.00

The deviations between the actual distributions of the identifications of eight photographs of women and the theoretical one represented in terms of chi square

Prima donna	71.41	61.54	26.08
Member of royalty	26.26	46.43	37.28
Woman politician	27.41	34.20	55.52
Bolshevik	165.70	239.10	248.16
Actress	37.69	73.75	42.72
Lawyer	24.56	22.40	10.72
University professor	43.98	32.87	71.84
Newspaper woman	25.70	19.53	42.72

a general experience background or out of a specific training. Before a meaningful, statistical measure of agreement among the groups can be attained, the agreement within each group must be determined. An index of departure was computed for the halves of each group to obtain this information. The rank correlations, based on the indices of departure, were as follows: university men $+.367$, university women $+.852$, and business men $+.730$. The amount of agreement revealed, by the coefficient, for the university men is strikingly lower than the correlations for the other two groups. The coefficient, furthermore, is not in agreement with the number of correct identifications above chance and the average index of departure for this group. The statistical measure based on only 14 observers may account, in part, for the discrepancy. Half of the groups consisted of graduate students in psychology and the other half undergraduate students taking a political psychology course. A second rank correlation was computed on the basis of the indices of depar-

ture for these two groups. This coefficient proved to be higher than the former one but still low by comparison with the other coefficients, namely $+.560$. The conclusion seems inevitable that a rank correlation based on a small number of observers is highly unstable. An explanation in terms of restricted range is impossible, for the range of the indices for the university women was slightly smaller than for this group.

By intercorrelations the similarity in the order of the indices was determined, and these intercorrelations proved to be as follows: university men and university women $+.740$, university men and business men $+.695$, and university women and business men $+.680$. These coefficients indicate that the order of the indices is as similar among the groups as it is within the groups. This agreement may permit the interpretation that the various groups of observers have many stereotypes in common. Business men, it was previously pointed out, live in a different environment from that of university students. They, nevertheless, agree approximately as much with university men and women as the two sexes agree among themselves. From this we conclude, on the basis of the apparent trend, that stereotypes develop out of a general experience background and not out of specific training.

In summarizing the results of the present study, we may note that, in spite of using a different set of photographs than that used by Rice, the number of correct identifications exceeds a chance value to an extent which suggests the influence of stereotypes. One point of difference, however, emerges between Rice's results and the present ones—business men do not have a higher concentration of opinion than is found for the university men. Rice, it may be observed, found that Vermont Grange members had a comparatively higher concentration of opinion than Dartmouth College students. The present findings, however, do not disprove Rice's results, since in all probability his Vermont Grange members represented a homogeneous body, whereas the business men participating in this study were not an organized group. Finally, the interpretation seems justified that the stereotypes of university men, university women, and business men issue out of a common, general experience background.

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*University of Minnesota
Minneapolis, Minnesota*

LES STÉRÉOTYPES

(Résumé)

Il y a longtemps que les psychologues reconnaissent le fait que les préjugés, les partis pris, et les fausses notions ou ce que l'on a appelé récemment des stéréotypes ont une influence marquée sur la perception et le jugement. Au domaine de la Psychologie Sociale l'étude quantitative de ces facteurs par Rice est unique. L'étude que voici essaie de vérifier et d'étendre l'investigation de Rice.

On a demandé à des étudiants universitaires, à des étudiantes universitaires, et à des hommes d'affaires d'identifier nombre de photographies selon l'état professionnel. Les mesures statistiques employées, pour révéler la présence des stéréotypes, ont été (1) le nombre d'identifications correctes dépassant une valeur de hasard et (2) la divergence de l'opinion concentrée des observateurs de chaque photographie d'une distribution au hasard, à savoir, l'indice de la divergence de l'expectation. En outre, le critère de *khi carré* appliqué à l'indice des divergences a indiqué que le degré de l'opinion concentrée n'a pas été un résultat au hasard; il semble donc qu'on puisse l'expliquer par l'influence des stéréotypes.

Les intercorrélations basées sur l'ordre de rang de l'opinion concentrée des observateurs de chaque photographie, puisqu'elles indiquent autant d'accord parmi les groupes qu'il y en a dans chaque groupe, suggèrent que les stéréotypes se développent d'un fond général d'expérience. Cette conclusion d'ailleurs est justifiée en termes des différences dans l'entraînement spécifique des hommes d'affaires et des étudiants universitaires.

LITTERER

STEREOTYPEN

(Referat)

Die Psychologen haben längst anerkannt, dass Vorurteile, Neigungen, Misverständnisse, oder dass, was man neuerlich Stereotyp benannt hat, Wahrnehmung und Urteilung stark beeinflussen. Im Bereich der sozialen Psychologie nimmt die quantitative Untersuchung dieser Einwirkungen durch Rice eine besondere Stellung ein. In der gegenwärtigen Untersuchung will man die Untersuchung von Rice bestätigen und erweitern.

Studenten, Studentinnen, und Geschäftsmänner wurden ersucht, eine Anzahl von Photographien in Bezug auf den Berufsstand zu identifizieren. Die zur Entdeckung von Stereotypen verwendeten statistischen Massstaben waren: (1) die Zahl der über die dem Zufallsgesetz nach zu erwartenden hinausgehenden richtigen Identifizierungen, und (2) die Abweichung der

zusammengefassten Meinung der Beobachter über jede Photographie von einer zufälligen Verteilung dieser Meinungen—d.h., der Index der Abweichung von dem zu Erwartenden. Ferner wurde das Kriterium des Chi-Quadrats (Chi square) auf den Index der Abweichungen angewendet. Dieses Kriterium wies darauf hin, dass der Grad der Konzentrierung der Meinung kein zufälliger Befund war; er ist also mutmaslich der Einwirkung von Stereotypen zuzuschreiben.

Die auf die Rangordnung der konzentrierten Meinung der Beobachter über jede Photographie basierten Unterkorrelationen (inter-correlations) weisen darauf hin, dass Stereotypen sich aus einem allgemeinen Hintergrund der Erfahrung (general experience background) entwickeln, da diese Unterkorrelationen auf ebensoviel übereinstimmung zwischen den verschiedenen Gruppen wie innerhalb jeder Gruppe hinweisen. Dieser Schluss wird ferner durch die Unterschiede zwischen Geschäftsmännern und Studenten in Bezug auf Erziehung rechtfertigt.

LITTERER

A STUDY OF THE INTELLIGENCE OF COLORED ADOLESCENTS OF DIFFERENT SOCIAL-ECONOMIC STATUS IN TYPICAL METROPOLITAN AREAS*^{1 2}

From the Institute for Juvenile Research, Chicago, Illinois

ALBERT SIDNEY BECKHAM

INTRODUCTION

Statement of the Problem. This study will deal with the intelligence of a special group, the colored adolescent boy and girl. This is an apt selection according to Thorndike (19), who says, "The doctrine that the ability to improve one's score in a measure of intelligence necessarily ceases at 14 or 16 should be abandoned."

The problem here is to analyze the intelligence, as measured by the Stanford Revision of the Binet-Simon, of a large number of colored adolescent city children in relation to their economic social status. As the various occupations are fairly well standardized in the economic scale, the social-economic status of these adolescents will be based on the occupation of their parents or guardians with whom they live. The fact that these are city children makes the problem further a selective one as is indicated by Alexander's (3) results. The school progress of these adolescents is also an important factor, hence it will be considered in relation to intelligence and economic social status. This study will throw light on school progress as related to economic independence and dependence.

It will be worth while to know at what level in the scale of educational progress are the children of the extremely poor and the children of the economically favored colored families in at least three important cities.

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²The author is especially indebted to Professors Charles E. Benson and Paul V. West of New York University, under whose direction this work was completed and from whom many helpful suggestions and much kindly advice have come. Appreciation and thanks are also given to the Laura Spelman Rockefeller Memorial for the grant that made the work possible.

In Washington and Baltimore the schools for white and colored children are separate. It will be valuable to know if these colored schools and similar schools might profit by a wise consideration of economic-social status in the organization of courses of study. To what extent are the children in the various groups interested in different professions and vocations and to what extent are they able to grasp them?

Vocational guidance is also an important problem in this connection. Vocations are based on intelligence. Are these adolescents entering their life callings intelligently? This study will throw light on such problems as are here mentioned and it is hoped that a little light here and there will be suggestive of further studies along this line.

Need for Solution. The question concerning the intelligence of the colored boy and girl has received wide attention. The many discussions on this problem have usually been based on mere sentiment, as Ferguson (8) indicates. This information will be useful to educators and social workers as well as to students of intelligence.

Definition of Metropolitan Areas. Metropolitan areas for our purpose are cities that contain at least 100,000 colored in the general population of the city. According to the Census (20), New York City has 152,467 Negroes; Baltimore, Maryland, has 108,322, and Washington, D. C., contains 109,966. All the children in this study are from the three cities mentioned above.

Definition of Intelligence. Terman (18) thinks it is unreasonable to require a definition of intelligence when one wishes to measure it. He says:

"However, it is impossible to arrive at a final definition of intelligence on the basis of *a priori* consideration alone. To demand, as critics of the Binet Method have sometimes done, that one who would measure intelligence should first present a definition of it, is quite unreasonable."

It was Alfred Binet (5) who attempted to satisfy the many critics of intelligence in his comprehensive definition. In his definition he included not only the highest psychic processes, but some of the physical correlates as well. He says:

- "(1) Intelligence must maintain a definite direction:
- "(2) It is the ability to adapt oneself to one's environment;
- "(3) Intelligence must have the power of auto-criticism."

Woodworth (21) defines intelligence by description. He says, in reference to the person tested:

"He has to see the point of the problem now set him, and to adapt what he has learned to this novel situation."

Pintner (12) stresses the modifiability of the organism in his concept of general intelligence.

Benson *et al.* (4) stress the neural mechanism and the environment as qualifying factors of intelligence.

Definition of Adolescence. L. S. Hollingworth (9) defines adolescence as "that period of life which lies between childhood and adulthood."

Moxcey (10) is more interested in the child some time after the physical, moral, physiological, emotional, and mental changes have gotten far into adolescent development.

Proczek (13) defines adolescence as "the age of physical formation."

Methods of Studying Adolescents. Various methods of studying the adolescent have been advocated.

Mrs. Woolley (22) advocates the method of mental and physical measurement. She also includes the social status of the child and collects the case histories as corroborative evidence.

A study of adolescence through the medium of play has been made by Appleton (1). She sees a number of hungers developed during the play life of the child; she thinks it is the duty of education to seize upon these hungers for pedagogical purposes. She says:

"The play hunger is but one of many. The greater the varieties of normal hungers, the more developed the child. But the type of hungers, not the number of his years, indicates the extent of his development."

Fenton and Worcester (7) advocate the individual method. This method is a study of the individual child. In this approach the following information is obtained: (1) child's history, (2) body measurements, (3) medical examination results.

Schulze (14) in Germany has made studies of the adolescent not only by obtaining the mental, physical, and anthropometrical measurements but also by making a graphic study of the emotional life. He observed the facial expressions of the child as the child studies

a photograph or during the act of observing a motion picture. He makes an analysis of training and emotional expression.

Historical Sketch of the Problem. Most of the studies concerning the intelligence of colored children have been devoted to racial comparison. The literature presents such studies as a comparison of economic-social status and intelligence, and intelligence compared with school achievement. There is much conflicting evidence in the literature on the intelligence of the Negro child. Most of the quantitative studies in the field include so few subjects that the results are often considered doubtful.

As early as 1913 Strong (15) made a study on the comparative intelligence of white and colored children. She used the Binet-Simon scale of intelligence. Sunne (16), in New Orleans, made a comparative study of the intelligence of white and colored children in 1917. He attempted to get children of the same social-economic status. He used the Binet and Yerkes Point Scale. In 1920 Derrick (6) made a comparative study of the intelligence of white and colored college students. His study included 75 white and 55 colored college students. He used the Stanford-Binet Scale. His study revealed an average intelligence quotient rating of 103 and 112 for the colored and white students respectively.

Arlitt (2) took into consideration the economic-social status. She tested native whites, Italians, and colored children. She also used the Stanford Revision of the Binet-Simon. As in this study, she used the Taussig scale for social-economic distribution.

Peterson (11) has been widely quoted on the comparative abilities of colored and white children. A summary of his results in the field follows:

"Certainly our results lend no general support to the contention by certain persons that the Negro as a class should have a different sort of education from that given the white race. Overlappings on the basis of every sort of ability are large and obvious in every study that has been made; the race differences are differences of degree, and in all cases a few colored individuals rank high among the whites, and a considerable proportion of them surpass half of the whites. Our results show, however, that a large per cent of the colored children, as well as many white children are unable to profit by the sort of abstract and conventional education that is yet too prevalent in our public schools."

TABLE 1

RESIDENCE, NUMBER, AND EDUCATIONAL STATUS OF 1100 COLORED ADOLESCENTS

Grades	N. Y. City		Washington		Baltimore		Delinquents		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Below sixth	0	0	108	13	32	21	56	56	196	17.8
Sixth	4	4	115	15.3	24	16.3	24	24	167	15.18
Seventh	53	53	196	26	22	15	8	8	279	25.3
Eighth	27	27	155	21	36	25	8	8	226	20.5
Above eighth	16	16	179	24	33	22.4	4	4	232	21.0
Total	100	100	753	100	147	100	100	100	1100	100

Summary. In measuring the intelligence of colored children the economic social status is very important. It is more important than racial differences in intelligence measurement. Race differences are differences in degree. Differences in the same race are about as obvious as differences between the races.

THE PROCEDURE³

General Statement. The subjects of this study are boys and girls of adolescent age. They are between 12 and 16 years. Table 1 shows the number studied, as well as their educational status and the cities in which they live. The table also presents similar data for 100 delinquent boys who are included in this study.

The table shows that more than half of the delinquents are below the 6th grade. No New York City child in this study is below Grade 6. Above the 8th grade, Washington has the largest percentage. Only 4% of the delinquents are above the 8th grade. Washington furnished 68.5% of the total number of adolescents in this study; Baltimore, 13.4%. The New York City group and the delinquents each make up 9% of the entire group.

The total number of adolescents in this study is 1100. One hundred of these adolescents are inmates of a delinquent school. No individual in this study is older than 16 years 4 months and no child is included who had not reached his 12th birthday. Each adolescent was given the Stanford-Binet test either by the writer or one of his assistants. Each assistant had a year or more of experience in the actual giving of the test under supervision.

³The author acknowledges the invaluable aid of Eva T. Hilton, Mamie L. Wormley, Evangeline Palmer, and Louise Canaday for assistance in administering a number of the tests with the Washington group.

How the Subjects Were Obtained. The testing of the Washington and Baltimore subjects took a period of nearly three years at Howard University, in Washington, District of Columbia. Students who, during this period (from 1925-1928), elected the course in the "Psychology of Childhood and Adolescence," were required to bring an adolescent to the laboratory to obtain the following information: The Stanford-Binet mental age and intelligence quotient, height and weight of the adolescent, grip and vital capacity, etc.

The results of either an achievement test or of two or more performance tests were also obtained. The students for the most part were cooperative and earnest about this practical side of the course.

The method outlined by Terman for giving the test was rigorously enforced in this study.

The Baltimore adolescents were brought to the Howard University Psychological Laboratory during the period mentioned above, either by Baltimore students electing courses in psychology at Howard, or by a parent who was anxious to have the child studied. In some cases the adolescents were brought to the laboratory by teachers who wanted some psychological information about the child. The same data was collected from this group that was obtained from the Washington boys and girls. The information concerning the delinquents was obtained from the Blue Plains Industrial School.⁴

The only information obtained from the New York adolescents was derived from the Stanford-Binet test and a questionnaire on personal and social attitudes and interests. In New York City the tests were given at several places. The attempt was made to make the conditions as uniform as possible, however.

Giving the Test. The examiners insisted upon a quiet place for giving the test and usually talked jovially with the adolescent about his various interests. This was done in order that the proper rapport would be established between examiner and examinee. It is certain that the importance of creating the proper rapport cannot be stressed too greatly. All of the subjects in this study were tested

⁴The author has drawn heavily on the work of Tillman Henderson for which he acknowledges with thanks: "A Psychological Study of 100 Delinquent Negro Boys of the Blue Plains Industrial School," unpublished M.A. thesis, Howard University; by Tillman H. Henderson.

in the psychological laboratory except the 100 boys at Blue Plains, D. C., and the 100 boys and girls comprising the New York group.

Recording of Data. The information was first put in the record booklet which is specially devised for testing with the Stanford Revision. After the material in the record booklet was thoroughly analyzed for each adolescent it was decided to transcribe the following information on a single card for each adolescent.

1. Sex of adolescent
2. Chronological age
3. Mental age
4. Intelligence Quotient
5. School grade
6. Ambition of adolescent
7. Number and sex of other children in family
8. Occupation of parent or guardian

RESULTS

Distribution of Intelligence in the Groups. Table 2 shows the distribution of IQ's of colored adolescents from New York City, Baltimore, and Washington, D. C., as well as those of one hundred delinquent colored boys from Blue Plains, D. C. The IQ's are arranged according to Terman's classification of intelligence. They are also given in percentages of frequency.

Table 2 shows the superiority of the New York City group. Only 6% of this group is below normal or average intelligence, as compared with 28.8% of the Washington group, 32.6% of the Balti-

TABLE 2

DISTRIBUTION OF ADOLESCENTS FROM NEW YORK CITY, WASHINGTON, D. C., BALTIMORE, MD., AND OF THE DELINQUENT BOYS EXPRESSED IN PERCENTAGES FALLING IN VARIOUS IQ INTERVALS

Adolescents	Below 70	70-80	80-90	90-109	109-119	119-139	Above	Total
	IQ Feeble- minded	IQ Border- line def.	IQ Dull	IQ Normal or average	IQ Sup. intell.	IQ Very sup. intell.	139 IQ Genius	
New York	0	1	5	65	27	2	0	100.0
Washington	2.6	6.2	20.0	61.6	7.0	2	0	100.0
Baltimore	3.4	9.5	19.7	55.4	10.2	1	0	100.0
Delinquents	15.0	18.0	31.0	33.0	1.0	2	0	100.0
Total	3.6	7.4	17.4	60.2	9.0	2.0	0	100.0

more group, and 64% of the delinquent boys. The table also shows a definite inferiority of the delinquents as a group. Three of the groups, New York, Washington, and the delinquents, have the same percentage of children testing very superior intelligence. No child in any of the groups qualified for Terman's near genius or genius.

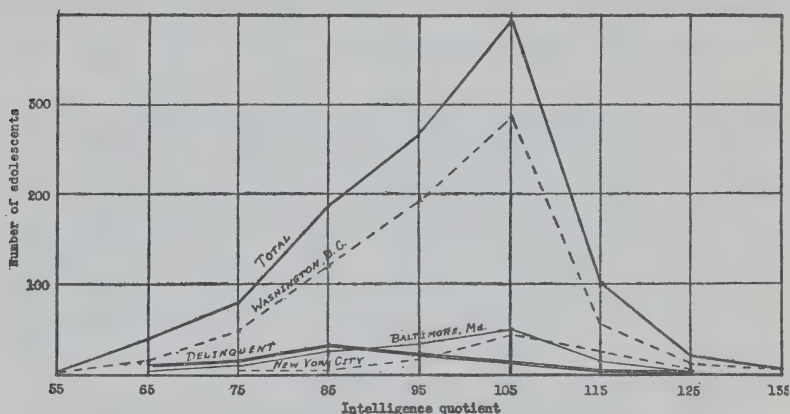


FIGURE 1

DISTRIBUTION OF IQ'S OF THE GROUPS FROM NEW YORK CITY, WASHINGTON, AND BALTIMORE AND OF THE ONE HUNDRED DELINQUENT BOYS FROM BLUE PLAINS, D. C.

Intelligence-quotients	New York City	Washington, D. C.	Baltimore, Md.	Delinquent	Total
130-139	—	5	—	—	5
120-129	2	12	2	2	18
110-119	27	57	15	1	100
100-109	44	288	47	15	394
90-99	21	194	35	18	268
80-89	5	128	29	31	193
70-79	1	49	14	18	82
60-69	—	18	5	15	38
50-59	—	2	—	—	2
Total	100	753	147	100	1100
Mean	104.70	97.74	95.74	86.00	95.17
Sigma	9.21	12.50	13.10	12.8	13.13
P.E.-M	.062	.0307	.72	.86	.26

Distribution of IQ's of Groups from Washington, Baltimore, New York City, and of the group of 100 Delinquent Boys from Blue Plains, D. C. Figure 1, with the accompanying table, shows the distribution of IQ's of the total number of subjects in this study. There are 1100 adolescents represented in this distribution, with a range of IQ's from 50 to 139. The mean IQ for the four groups

is $95.17 \pm .26$. The formula $M = \frac{\sum X}{N}$ was used. The

standard deviation is 13.13. The diagram shows that 123, or 11.18% of the adolescents, are above 109 IQ. The diagram also reveals that 662, or 60.18% test between 90 and 109 IQ. It is finally revealed that 315, or 29.6% of the total number of adolescents test below 90 IQ. Figure 1 is based on a slight modification of Terman's classification of IQ's. This was done more adequately to present a comparison of the four groups composing this study.

Summary. The New York City group is the highest in general intelligence as measured by the tests. The Washington group follows, with Baltimore third, and the delinquent group last.

Table 3 reveals that in IQ point differences the New York City group has an average of 18.70 above the delinquents; it is 8.96 above Baltimore and 6.45 above the Washington adolescents. The Washington group has an average of 11.25 IQ points above the delinquent group. It is worth while to note that only 18% of the delinquents equal or exceed the New York mean, and 48% of the Washington group equal or exceed the New York City mean.

The New York City group has the smallest and the Baltimore group the largest standard deviation from the mean. The standard deviation shows that more than two-thirds of the New York adolescents are between 70 and 110 IQ. The standard deviation shows

TABLE 3
SUMMARY OF IQ's, σ 's, AND $P.E._m$

Adolescents	Mean IQ	σ	$P.E._m$
New York City	104.70	9.21	.062
Washington	97.25	12.50	.307
Baltimore	95.74	13.10	.720
Delinquents	86.00	12.80	.860
Total	95.17	13.13	.260

that the majority of adolescents in the Washington group are below 100 IQ. The standard deviation also shows that nearly two-thirds of the Baltimore adolescents are below 100 IQ. Finally, the standard deviation shows that more than two-thirds of the delinquents are below 100 IQ.

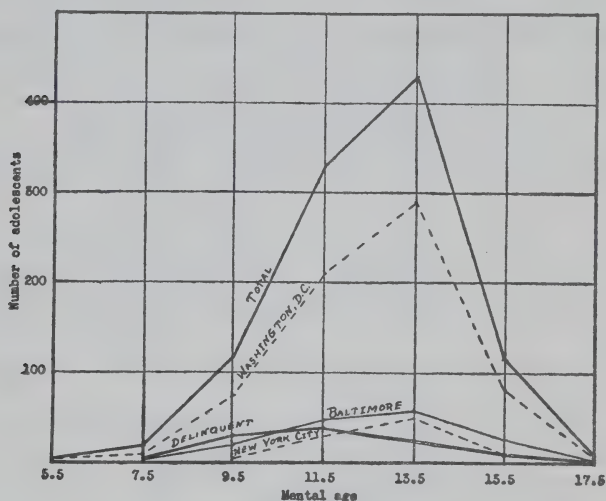


FIGURE 2

DISTRIBUTION OF MENTAL AGES OF THE GROUPS FROM NEW YORK CITY, WASHINGTON, AND BALTIMORE AND OF THE ONE HUNDRED DELINQUENT BOYS FROM BLUE PLAINS, D. C.

Mental ages	New York City	Washington, D. C.	Baltimore, Md.	Delinquent	Total
Over 16.9	—	6	1	2	9
15-16.9	9	81	21	4	115
13-14.9	54	294	57	26	431
11-12.9	33	214	47	37	331
9-10.9	4	76	20	27	127
7-8.9	—	10	1	4	15
5-6.9	—	3	—	—	3
Total	100	684	147	100	1031
Mean	13.31	13.078	13.09	11.55	12.00
Sigmas	1.38	1.89	1.88	2.02	1.88
P.E. _M	.093	.048	.104	.136	.03

The probable error of the means reveals that the chances are even that the New York mean IQ is between 104.6 and 104.8; the Washington mean is between 96.6 and 97.9; the Baltimore mean IQ is between 94.3 and 97.1; and the delinquent mean is between 84.2 and 87.7.

General Distribution of Mental Ages of Groups from Washington, Baltimore, and New York City, and of 100 Delinquent Boys from Blue Plains Industrial Home. Diagram 2 with accompanying table shows the distribution of mental ages. It shows a total of 1031 mental ages in the distribution. The mean mental age for the four groups is $12.00 \pm .03$. The standard deviation is 1.88.

The distribution shows 555, or 53.8% of the mental ages, above 12; 331, or 32%, between 11 and 12; and 145, or 14%, below 11 years.

Summary. With respect to the mental ages it is evident that the New York group is superior. The Washington and Baltimore groups are about equal, and the delinquent group shows definite inferiority.

Table 4 is a summary of mental ages, sigmas, and probable errors, of the four groups of adolescents.

Although the New York, Washington, and Baltimore groups have their mean mental ages between 13 and 14, it is evident that the New York group is the oldest mentally. These three groups average considerably higher than the delinquents in their mental ages. It is worth while to note that 32% of the delinquents equal or exceed the mean mental ages of the New York City, Washington, and Baltimore groups, while 68% of the delinquents are below the mean of the other three groups.

Distribution of Chronological Ages of Groups from Washington, Baltimore, and New York City, and of 100 Delinquent Boys from

TABLE 4
SUMMARY OF MEAN MA's, σ 's, AND P.E.'s

Adolescents	Mean MA	σ	P.E.
New York City	13.31	1.38	.093
Washington	13.078	1.89	.048
Baltimore	13.09	1.88	.104
Delinquents	11.55	2.02	.136
Total average	12.00	1.88	.030

Blue Plains, D. C. Figure 3 shows the distribution of the chronological ages for the Washington, Baltimore, and New York City groups and for the 100 delinquent boys. The diagram reveals that the mean CA for the four groups is $13.97 \pm .027$. The standard deviation is 1.28. The figure also reveals that there are 510, or 49.9%, above 13 years of age. The chronological ages are computed as age nearest birthday.

Summary. The New York City group is the youngest of the

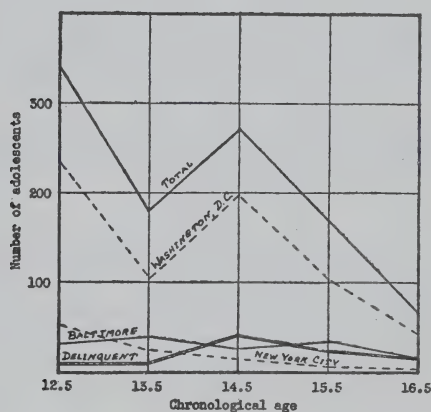


FIGURE 3

DISTRIBUTION OF CHRONOLOGICAL AGES OF THE GROUPS FROM NEW YORK CITY, WASHINGTON, AND BALTIMORE AND OF THE ONE HUNDRED DELINQUENT BOYS FROM BLUE PLAINS, D. C.

Chrono-logical ages	New York City	Washington, D. C.	Baltimore, Md.	Delinquent	Total
16-16.9	2	42	14	14	72
15-15.9	3	102	33	28	166
14-14.9	15	196	29	32	272
13-13.9	26	101	37	12	176
12-12.9	54	234	34	14	336
Total	100	675	147	100	1022
Mean	13.2	13.8	14.2	14.66	13.97
Sigma	1.31	1.20	1.30	1.20	1.28
P.E. _M	.08	.031	.07	.08	.027

TABLE 5
SUMMARY TABLE OF MEAN CA's, σ 's, AND P.E.'s

Adolescents	Mean CA	σ	P.E.
New York City	13.23	1.31	.08
Washington	13.81	1.20	.03
Baltimore	14.20	1.30	.07
Delinquents	14.66	1.20	.08
Total	13.97	1.28	.03

four. The delinquent group is the oldest. The average difference in life age between the New York and Washington groups is about the same as the average difference between the Baltimore and delinquent groups.

Table 5 is a summary of all mean CA's with their appropriate σ 's and P.E.'s. This table shows that the New York group is the youngest, 54% being under 13 years of age. The delinquent group is the oldest.

It is worthy of note that the standard deviations of the New York City and Baltimore groups are about the same and that the Washington and delinquent groups are the same. At the highest age level, which is year 16, Washington has 6.15%, Baltimore 9.5%, and New York City 2% of the entire group.

Results According to Age and Grade. Table 6 is a distribution of school grades according to life ages.

TABLE 6
SCHOOL GRADE DISTRIBUTION OF ADOLESCENTS ACCORDING TO CA's

Grades	CA 12		CA 13		CA 14		CA 15		CA 16		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Below sixth	84	23	27	15	25	11	11	7.1	3	4	150	15
Sixth grade	55	16	28	15	39	16	14	9	0	0	136	14
Seventh grade	112	32	57	32	42	18	30	19	10	14	251	25
Eighth grade	86	25	43	25	58	24	36	22.3	13	18	236	24
Above eighth	16	4	21	13	74	31	66	42	47	64	224	22
Total	353	35	176	17.70	238	23.9	157	15.7	73	7.3	997	100

Table 6 shows considerable retardation, as well as some acceleration. If all pupils had made normal progress no one in this study would be below Grade 6. The data show, however, that 150 subjects, or 15% of the group, are below this grade. On the other hand, there are 224, or 22%, who are above the eighth grade, i.e., in high school or college.

Distribution of Intelligence by Grades. Table 7 is a distribution of intelligence of the adolescents from New York, Washington, and Baltimore by grades. The combined IQ of all these children who are below the sixth grade is 90.02. The IQ for all who are in Grade 6 is 93. The children in the seventh grade have a mean IQ of 99.22; the mean IQ for Grade 8 is 102.81, and for those above Grade 8 it is 103.32. The table reveals a constant increase of the IQ with the increase of grade. This difference is most marked with the adolescents who are below sixth and those who are in the sixth grade.

A Study of the Economic-Social Groups Classified by Taussig's Scale. Professor F. L. Taussig (17), the economist, has devised an economic-social scale based on occupation, education, and compensation of parents. There is considerable overlapping in the groups but they are serviceable for comparative purposes. This classification is five-fold. The composition of these groups follows: Group I, day laborers; Group II, no special skill, as porters, janitors, etc.; Group

TABLE 7
MEAN IQ BY GRADES FOR THE NEW YORK CITY, WASHINGTON, AND
BALTIMORE GROUPS

	Below sixth	Sixth grade	Seventh grade	Eighth grade	Above eighth	Total average for all grades
IQ	90.02	93.00	99.20	102.81	103.30	99.20
Number	140	138	265	218	229	990
Percentage	14	13.9	26.8	22.0	23.0	100.0

TABLE 8
THE FIVE SOCIAL-ECONOMIC GROUPS
Showing number, percentage, and IQ's of each group

	Group I	Group II	Group III	Group IV	Group V	Total
Mean IQ	93	95	97	101	98	95.17
Number	173	301	448	117	61	1100
Percentage	15.72	27.36	40.72	10.63	5.44	100.0

III, skilled workers; Group IV, clerical workers; Group V, professional people.

Table 8 shows the social-economic grouping according to Taussig's classification. It reveals an increase in the IQ through the groups until the fifth group is reached. The mean IQ of the children of common laborers is 93; there are 173 adolescents, or 15.72% of the entire number, in this group. In Group II there are 301 children; their mean IQ is 95. This group comprises 27.36% of the adolescents. In Group III there are 448 subjects, or 40.72%. The mean IQ for this group is 97. The fourth group, containing 117 adolescents, or 10.63%, has the highest mean IQ of the five groups, 101. It is the only group with a mean IQ reaching 100. In Group V there are only 61; this represents the smallest sampling of any group, only 5.44%. The mean IQ for the group is 98.

The combining of certain groups on the Taussig scale would make our data more convincing. When Groups I and II are combined, the mean IQ is 94, and if Groups IV and V are combined the mean IQ is 99. The difference between Groups I and III is 4, which is significant. There is also an obvious difference between Group IV and Groups I, II, and III. These differences are obtained by simply subtracting the differences of the means.

Vocational Ambitions of the Five Groups. Table 9 shows the vocational ambitions of the adolescents in this study. It reveals that 20% of the children in Group I, which has a mean IQ of 98, are planning to enter one of the professions. In the same group 28% have semi-professional ambitions. In this group the largest percentage wish to enter skilled labor, viz., 39%. The mean IQ for those having skilled labor as their goal is 96. Those in Group I who are looking forward to unskilled labor have a mean IQ of 90. Eight per cent of the group, with a mean IQ of 85, are undecided as to any vocational ambition.

Group II has 301 adolescents; 16% of them have professional ambitions, while 38% aspire to semi-professional pursuits. The next percentage, 37.5, in this group wish to enter skilled labor; the mean IQ of those so wishing is 95. Only 2% wish to go into unskilled labor, and 11% of the group, with a mean IQ of 88, are undecided. Those with higher ambitions have slightly higher IQ's.

In Group III, 18% wish to enter the professions; 33.4% have semi-professional longings, while 42% have vocational ambitions for skilled labor. Only 13% at the present stage of their lives, are will-

TABLE 9
PROFESSIONAL AND VOCATIONAL AMBITIONS OF ADOLESCENTS IN EACH GROUP

Voca. ambition	Group I		Group II		Group III		Group IV		Group V						
	No.	% IQ	No.	% IQ	No.	% IQ	No.	% IQ	No.	% IQ					
Professional	34	20	98	47	16	96	79	18	98	30	26	106	23	38	98
Semi-professional	48	28	99	100	38	97	150	33.4	98	45	38	105	23	38	99
Skilled labor	67	39	96	114	37.5	95	187	42	87	35	30	99	12	19	90.8
Unskilled labor	9	5	90	7	2	98	6	13	94	2	16	98	—	—	—
Undecided	15	8	85	33	11	88	26	5.8	97	5	4.2	94	3	5	105
	173		93.6	301		94.8	448		96.8	117		100.4	61		98.2

TABLE 10
SIZE OF FAMILY EACH CHILD REPRESENTS IN EACH SOCIAL-ECONOMIC GROUP, ALSO MEAN IQ'S AND AVERAGE GRADE
FOR CHILDREN FROM DIFFERENT SIZES OF FAMILIES

Size of Family	Group I		Group II		Group III		Group IV		Group V		Mean Average IQ grade	
	No.	%	No.	%	No.	%	No.	%	No.	%		
Not more than two children	36	20.80	114	37.37	15.3	34.20	44	38.04	19	31	99.00	7.19
Not more than four children	50	28.90	72	23.90	130	29.00	34	29.06	23	38	96.50	8.80
Not more than six children	53	30.63	73	24.00	110	24.50	34	29.06	15	25	96.00	7.50
Not more than eight children	26	15.04	35	11.60	40	8.90	4	3.01	4	6.00	93.00	6.90
Not more than ten children	8	4.63	6	1.99	12	2.70	1	.83	—	—	93.46	7.00
Over ten children	—	—	1	.64	3	.65	—	—	—	—	86.60	5.50

ing to accept unskilled labor as their future careers, while 5.8%, with a mean IQ of 97, are undecided as to any vocational ambition.

Group IV is the most favored. It has 117 adolescents with a mean IQ of 101.

Group V has the smallest selection of all the groups. There are only 61 adolescents represented; these are equally divided between professional and semi-professional ambitions.

The Relation of Intelligence and School Progress to Size of Family. Table 10 presents data showing the relation of social-economic status and size of family. It also shows the mean IQ for the different sizes of families as represented by these children in the five groups. The table gives the average grade reached in school by the representatives of the different sizes of families.

The percentage of children in each group from families having not more than two children are as follows: Group I, 20.8; Group II, 37.37; Group III, 34.2; Group IV, 38.04; Group V, 31.14. It is evident, then, that Group IV has the largest percentage of children from families where there are not more than two children. The highest amount of intelligence as measured by the tests is found in families with not more than two children. The average grade for this size of family is 7.19.

The adolescents in this study from families of not more than four children are represented by the following percentages: Group I, 28.9; Group II, 23.9; Group III, 29; Group IV, 29.06; Group V, 38. The mean IQ for those adolescents from families of not more than four children is 96.5. Group V has a larger percentage of children from this size of family than any of the other groups.

A Comparative Study of the Lowest and Highest Two Per Cent of IQ's. Table 11 presents a comparison of the lowest and highest 2% of IQ's. It is interesting to note that the mean IQ for the highest 2% is exactly twice the mean IQ for the lowest 2%. The former has also attained nearly twice the progress in school. The highest 2% is also a younger group, chronologically.

The Relation of IQ and Failure in School. Table 12 shows the relation of IQ to failure with the entire group studied. Two hundred and fifty-five of these adolescents have no failures on their educational record. Failure is here used when a pupil fails to get a promotion. With respect to age, this table reveals that the average age reached by the adolescents of all groups is 13.97. The group that has no failures is younger chronologically, more advanced in

TABLE 11
HIGHEST AND LOWEST TWO PER CENT OF IQ's

	No.	%	Av. grade for 5 groups	Mean IQ for 5 groups	Mean CA for 5 groups
Lowest 2%					
Eco.-Soc. Group	I— 10	50			
	II— 2	10			
	III— 1	5			
	IV— 4	20			
	V— 3	15			
	20	100	4.7	63	14.0
Highest 2%					
Eco.-Soc. Group	I— 3	15			
	II— 4	20			
	III— 7	35			
	IV— 4	20			
	V— 2	10			
	20	100	7.6	126	12.3

TABLE 12
A COMPARISON OF THE NUMBER, IQ, PERCENTAGE, AVERAGE GRADE, AND CA
OF NO-FAILURE, ONE-FAILURE, AND TWO-OR-MORE-FAILURE GROUPS

	No.	Mean IQ	Percentage	Average grade	Mean CA
No failures	225	106	23.18	8.6	12.80
One failure	310	97	28.18	7.9	13.90
Two or more failures	535	88	48.63	6.9	14.23
Total	1100	95.17	100.0	7.8	13.97

TABLE 13
DISTRIBUTION OF GRADE AND AVERAGE AGE OF 100 DELINQUENT BOYS

Average age	12.00	13.00	14.20	13.15	13.23	14.13	15.10	13.40	15.00	16.00	Total average
Grade	1	2	3	4	5	6	7	8	9	10	
No. in grade	1	1	1	24	29	24	8	8	3	1	5

TABLE 14
CORRELATION OF IQ'S AND GRADES OF 100 DELINQUENT BOYS

IQ	Grades
Mean $86 \pm .86$	Mean 5.8
$r = .30 \pm .06$	

school, and is considerably more intelligent. Failure therefore seems to be a significant point in studies of adolescents.

A Further Analysis of the Delinquent Boys

Educational Status of One Hundred Delinquent Boys. Table 13 shows the grade and average age distribution of the delinquent boys. The average grade reached by these delinquents is 5. The average for the grades is as follows: For Grade 1, 12 years; Grade 2, 13 years; Grade 3, 14.2 years; Grade 4, 13.15 years; Grade 5, 13.23 years; Grade 6, 14.13 years; Grade 7, 15.10 years; Grade 8, 13.40 years; Grade 9, 15 years; and Grade 10, 16 years. The average age for the delinquent group is 14.6.

Table 14 shows the correlation of grades and IQ's of this delinquent group. The mean grade is 5.8 and the mean IQ is $86 \pm .86$. The coefficient of correlation between the IQ's and grades was $.30 \pm .06$.

A Few Brief Case Studies of Delinquents

Case 1. Thomas, age 16, Grade 4, was committed to the institution for breaking into a store. He said that he had done no wrong and felt that the police had something against him. His parents are dead. His father was a caretaker in a park and his mother worked in a laundry. The boy is one of ten children, seven brothers and two sisters. One of his sisters reached the Teachers' Training School but did not finish and the others received but little training. His IQ is 64.

Case 2. Charles, age 15, Grade 6, was committed to the institution for housebreaking. His father is dead and his mother has married again. He has three brothers and a sister. He tested average intelligence but was quite disturbed about his home.

Case 3. Robert F., age 12, Grade 1, is one of 16 children. Parents separated when he was a baby. He was reared in a private home. His father was a porter at a drug store and his mother made her living working in a laundry. None of this boy's brothers' or

sisters reached high school. This boy was very peculiar and, when asked for his grade, said that he was in the sixth grade before entering the institution but his teacher had put him back in the first grade because he could not write. Further examination showed that this boy has a reading and number deficiency.

Case 4. Robert D., age 16, was sent to the institution for pocket-picking. He knows nothing about his parents for they gave him away when he was an infant. He is in the sixth grade.

Summary of Delinquent Results. The mean IQ of the delinquents is below the mean IQ of all other groups. There is a considerable difference between the general distribution of IQ's and the mean IQ of the delinquents. There are 11 points difference between the mean of the Washington group and that of this group. The Baltimore group averages 10 points above them, and the New York group, 19 points above.

GENERAL CONCLUSION

1. Measured by the tests and school achievement, the delinquent group is far below the other groups.

2. The mean intelligence of the New York group is above the mean intelligence of all other groups in the study.

3. Social-economic status is significant in the intelligence of colored adolescents.

4. The large percentage of these adolescents who have made no vocational choice and the percentage that has chosen where there is little likelihood of success show need of vocational guidance.

5. Sixty per cent of the lowest 2% of IQ's are in economic groups I and II, whereas only 35% of the highest 2% of IQ's are in Groups I and II.

6. The adolescents in this study are a special group. First of all, these adolescents are from the big cities, and, in the second place, an educational selection is operative. The average grade of the group studied is 7.8.

7. The number of school failures is a significant point in a study of adolescent children.

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Institute for Juvenile Research
Chicago, Illinois

UNE ÉTUDE DE L'INTELLIGENCE DES ADOLESCENTS NÈGRES DE DIFFÉRENTS ÉTATS SOCIO-ÉCONOMIQUES DANS DES SECTIONS MÉTROPOLITAINES TYPES

(Résumé)

Deux faits sont ici importants. Les enfants de la ville montrent en moyenne dans les tests une intelligence très supérieure à celle des enfants de campagne. En outre, les enfants nègres qui demeurent depuis longtemps dans des villes du nord sont plus intelligents que les enfants de même âge dans les villes du sud. Cette situation fait rappeler tout de suite la différence dans le système de l'enseignement des enfants nègres au nord et au sud. Les écoles inférieures du sud n'expliquent pas toute la différence des résultats d'intelligence. Il paraît que les enfants des villes du nord sont beaucoup plus sensibles aux produits de signification éducative. En considérant le rendement éducationnel, les intérêts professionnels et les capacités des enfants nègres, on devrait noter que l'état socio-économique est très significatif. Celui-ci est plus important que les différences de race.

On observe enfin que les enfants nègres délinquants créent un problème qui devient de plus en plus grand. Il ne s'agit pas en général d'un manque d'intelligence. Celui-ci n'est qu'une partie d'une situation sociale totale. Les personnes qui ont le devoir de résoudre ce problème devraient considérer non seulement l'intelligence, mais aussi les milieux et les attitudes familiales outre l'état socio-économique.

BECKHAM

EINE UNTERSUCHUNG DER INTELLIGENZ JUGENDLICHER NEGER AUS VERSCHIEDENEN SOZIAL-ÖKONOMISCHEN LAGEN IN TYPISCHEN GROSSSTADTVIERTELN

(Referat)

Es sind hier zwei Befunde bemerkenswert. Kinder aus Städten erzielen durchschnittlich viel bessere Resultate, als Kinder aus dem Lande. Ferner sind Negerkinder, die schon in nördlichen Städten wohnhaft sind, intelligenter, als Kinder in gleichen Altern aus südlichen Städten. Diese Befunde weisen auf den Unterschied zwischen den Unterrichtsvorrichtungen der nördlichen und südlichen Staaten in Bezug auf die Negerkinder hin. Die Minderwertigkeit der Schulen des Südens erklärt nicht vollständig die Verschiedenheit (discrepancy) der an den Intelligenzprüfungen erzielten Zahlen der zwei Gruppen. Es scheint, dass nördliche Stadtkinder Gegenständen von erzieherischer Bedeutung (products of educational significance) gegenüber empfindlicher sind. Bei der Untersuchung der Schulleistung, der Berufsinteressen, und der Fähigkeiten bei Negerkindern soll man bemerken, dass der ökonomisch-soziale Stand ziemlich bedeutungsvoll ist. Er ist wichtiger, als Rassenunterschiede.

Schliesslich wird bemerkt, dass Verbrechen bei Negerkindern eine Frage von stets zunehmender Wichtigkeit darstellen. Es kommt hierin nicht hauptsächlich auf minderwertige Intelligenz an. Letztere stellt nur einen Teil einer gesamten sozialen Lage dar. Personen, die mit dieser Frage zu tun haben, sollen nicht nur die Intelligenz, sondern auch Familienverhältnisse und Einstellungen, wie auch der sozial-ökonomischen Stand der Familie berücksichtigen.

BECKHAM

ATTITUDES TO THE DECLINE OF THE WEST*

From the Psychological Laboratories of the University of Maine

NATHAN ISRAELI

SPENGLER

A dramatic doctrine in social science, which has had a widespread influence, is that of Oswald Spengler. Amid sundry utterances in the *Decline of the West* (2), Mr. Spengler plainly predicts that in "a few centuries from now there will no more be a Western culture" (p. 167). Such a tragic end of our culture is, in his opinion, neither improbable nor remote. Even now, he can see signs of the "commencing and already perceptible decline of Western science" (p. 328). Regardless of its possible merits or flaws, this particular theory of the cyclical nature of cultural life has made a deep impression on many, as it casts a deep shadow on the future of our civilization. As a problem in social psychology, it may be of interest to find out what students think about this question of the decline of the West and compare their attitudes with the Spenglerian one. The purpose of this study¹ is to inquire into the notions students have of the possibilities and probability of a future decline of Western Civilization.

THE EXPERIMENT

This experiment consists of three parts. It seeks to find out what students consider to be (1) factors that will most probably cause or lead to a future breakdown or decline of Western Civilization, (2) possible consequences of such a breakdown, and the probability of a decline, and (3) date of the decline. The following form was used in the experiment. The subject first fills out a list of factors, then turns to two multiple-choice questions, and, finally, to the decline date. In this experiment, conducted in the spring of 1931 at the University of Maine, there were 151 subjects, consisting of 50 general psychology, 33 mental hygiene, 23 U. S. history, and 45 sociology students.² Although no limit was set to the number of

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¹This paper reports upon the fourth experiment in an investigation of reactions to the future. Other papers are forthcoming.

²For statistical convenience, the data of two sociology sections were combined.

IV

Name _____
(Print your last name first)

Department _____

What factors do you think will most likely lead to a decline or fall of Western Civilization? List here in the order of importance according to your own opinion or belief those factors which will most probably cause or lead to a future breakdown or decline of Western Civilization. Make your answers clear. You may name as many factors as you wish. It is suggested that you name the most important ones only.

LIST OF FACTORS (In order of importance)

- 1.
- 2.
- 3.
- 4.
- 5.

(The first factor named is the most important one, in your opinion; and the last factor named is the least important one.)

To complete the following two sentences, underline the item which represents your attitude on this question.

A future decline of Western Civilization will most probably

BE DISASTROUS

LEAD TO A MORE ADVANCED CIVILIZATION

A future decline of Western Civilization in my opinion is

LEAST PROBABLE

QUITE PROBABLE

MOST PROBABLE

This decline will come about in _____
(State the year here)

TABLE 1
FIRST TEN MOST COMMON FACTORS OF A FUTURE DECLINE OF THE WEST

Psychology

Political corruption
War
Moral decay and irreligion
Too much science
Overconfidence
Unemployment
Overpopulation
Money division and economic problems
Too high life, luxury
Racketeering, crime

Mental Hygiene

Too much science
War
Overpopulation
Political corruption
Moral decay and irreligion
Unemployment
Inadequate adjustment to a growing civilization
Money division and economic problems
Too high life, luxury
*Educational inadequacies
*Communism, socialism

U. S. History

Money division and economic problems
Political corruption
Moral decay and irreligion
War
Overpopulation
Rivalry with East
Too much science
Communism, socialism
Too high life, luxury
Exhaustion of natural resources

Sociology

Overpopulation
Money division and economic problems
War
Moral decay and irreligion
Exhaustion of natural resources
*Too much science
*Communism, socialism
Inadequate adjustment to a growing civilization
Too high life
Breakdown of family; divorce

*Tied in rank order.

factors, most subjects enumerated five factors. In the discussion of the results, the answers of the different groups will be compared on the basis of frequency and order of importance of the factors stated.

FACTORS OF A FUTURE DECLINE OF THE WEST

The first ten most common factors of the four different groups are quite similar; there is a certain difference in the order of factors for each group. Of the different factors mentioned by psychology students, for instance, the most common one is political corruption. Overpopulation is the most common factor of sociology students. This is shown in Table 1, in which the first ten factors of each group are listed in order of frequency.

To what extent the groups tend to agree in their list of factors may be judged from the rank-order correlations for the order of frequency of the factors for each group listed in Table 2. Correlations range from $+.41 \pm .125$ to $+.75 \pm .07$. A key of 22 items used to score the papers of the different groups was prepared from a preliminary survey of the responses and is the basis for these rank-order correlation coefficients. The key is given in Table 3. It covers practically all the factors stated by the different individuals.

So far the results were studied for differences in frequency or percentage agreement in different groups. It was found that, although the groups tend to use a score of more common factors to account for a future decline of Western Civilization, the order of factors based on frequency is not the same for the different groups. Inasmuch as the factors were arranged in order of importance, the frequencies may be weighted and then compared in the order of importance. It will be recalled that most subjects listed five factors.

TABLE 2

RANK-ORDER CORRELATION SHOWING EXTENT OF AGREEMENT BETWEEN GROUPS ON FACTORS WHICH MAY LEAD TO A DECLINE OF THE WEST

	Psychology	Mental hygiene	U. S. history	Sociology
Psychology		$+.70 \pm .081$	$+.68 \pm .086$	$+.41 \pm .125$
Mental hygiene	$*+.70 \pm .081$		$+.75 \pm .070$	$+.68 \pm .081$
U. S. history	$\dagger+.68 \pm .086$	$\dagger\dagger+.75 \pm .070$		$+.67 \pm .082$
Sociology	$**+.41 \pm .125$	$***+.68 \pm .081$	$\dagger\dagger+.67 \pm .082$	
<hr/>				
$*N=20.$	$**N=22$	$***N=22$		
$\dagger N=20.$	$\dagger\dagger N=19$	$\dagger\dagger\dagger N=22$		

To weight the factors for difference in importance, the first factor mentioned is multiplied by 5, the second by 4, the third by 3, the fourth by 2, and the fifth by 1. This gives a total score, by adding the weighted frequencies, for the various factors. Table 3 gives a list used as the key, with the factors arranged in order of importance. Overpopulation is the most important factor for all the subjects. Next follow war, political corruption, moral decay and irreligion, too much science and invention. Urbanization, climate, and accidents are the least important factors.

Group differences in the first five most important factors are of interest as they seem to reflect upon the cultural background of each group. There is an indication that certain judgments of the future are colored by the cultural background. History students mention money and economic differences as the most important factor; general psychology students indicate political corruption as the most

TABLE 3
COMPLETE LIST OF FACTORS WHICH MAY LEAD TO A FUTURE DECLINE OF THE
WEST
(Listed in order of importance according to all the subjects)

Order of importance	Factor
1	Overpopulation*
2	War
3	Political corruption
4.5	Moral decay and irreligion
4.5	Too much science and invention, overmechanization
6	Unequal or unfair division of money, economic problems
7	Unemployment and depression
8	Too high life, luxury
9	Exhaustion of natural resources, fuels and foods
10	Inadequate adjustment to a growing civilization
11	Overconfidence, restlessness
12	Communism, socialism
13	Racketeering, gangs, crime
14	Rivalry with East
15	Racial prejudice, religious differences
16	Desire for more power, more money
17	Educational inadequacies
18	Too fast life
19	Family breakdown, divorce
20	Urbanization
21	Climate
22	Accidents

*Includes birth control and immigration, most of the answers being *overpopulation*.

TABLE 4
COMPARATIVE IMPORTANCE OF THE FIRST FIVE FACTORS

Psychology	Index of comparative importance*	Mental hygiene	Index of comparative importance
Political corruption	100.0	Too much science	100.0
War	86.3	War	98.4
Moral decay and irreligion	76.5	Overpopulation	68.8
Too much science	69.6	Moral decay and irreligion	65.6
Overconfidence	50.0	Unemployment	64.0

U. S. history	Index of comparative importance	Sociology	Index of comparative importance
Money division	100.0	Overpopulation	100.0
Political corruption	95.8	Money division	30.6
Moral decay and irreligion	62.5	War	30.1
War	58.3	Moral decay and irreligion	23.0
Overpopulation	52.1	Exhaustion of natural resources	23.0

*Percentage weighted frequency total of a factor compared to that of the first factor.

important factor; mental hygiene students lay stress on too much science and invention, overmechanization, or on the possible dangers of the so-called Machine Age; sociology students place primary stress on overpopulation. This can be seen in Table 4, which also compares the last four of the first five most important factors with the first factor. For example, psychology students mention political corruption as the most important factor, and for them war is 86.3% as important as political corruption, while moral decay and irreligion is 76.5% as important as political corruption. Two of the first five, or 40% of the most important factors—war, moral decay and irreligion—are common to the different groups.

CONSEQUENCES AND PROBABILITY OF A FUTURE DECLINE

With the exception of one group, which is almost evenly divided on the question, most subjects believe that a future decline of Western Civilization will not be disastrous but will lead to a more advanced civilization. This is shown in Table 5.

Almost two-thirds of all the subjects think that a decline of Western Civilization is either quite probable or most probable. Thirty-six and seven-tenths per cent of the subjects think that a

TABLE 5
CONSEQUENCES OF A FUTURE DECLINE OF THE WEST

	Percentage agreement of the group			
	Psychology*	Mental hygiene	U.S. history	Sociology
Be disastrous	48.0	27.3	30.4	17.8
Lead to a more advanced civilization	46.0	72.7	69.6	82.2

*Excludes two blank answers and one with both alternatives.

decline is least probable; 9% that a decline is most probable. (See Table 6.)

DATE OF A FUTURE DECLINE OF THE WEST

The decline of Western Civilization is about two centuries away according to half of the groups. Some groups date it as far ahead as 13009.9. Some individuals fail to put down any date at all. The remote dates are due to the figures of a few individuals whose extremely distant dates, as compared to the rest of the group, distort that of the group.

Subjects who thought a decline least probable put it off more than those who thought it quite probable, and these, in turn, put it off more than those who judged it as most probable. The average year of a decline is 13634.6 for the least probable judgments; 2312.5 for the quite probable; and 2160.7 for the most probable. This shows a relation between the remoteness of a future event and the probability of that event in certain judgments of the future. Another way of looking at this is to consider the number of blank answers according to the probability. Of those who underlined the words *least probable*, 36.4% did not write any year. The quite probable judgments have only 3.7% blank answers, and the most probable judgments have none. Again, this indicates that with a greater uncertainty in regard to a future event, there is a greater remoteness and distance. Subjects who hesitated most in dating a future decline of the West were least certain of it. This relation between uncertainty and remoteness in judgments of the future is in line with a suggestion made by the writer that "as a situation recedes in futurity from the present the possible maps of that situation multiply as if in a certain ratio" (1).³

³See (1, p. 126).

TABLE 6
PROBABILITY AND DATE OF A DECLINE OF THE WEST

Probability	Psychology		Mental hygiene		U. S. history		Sociology		Average† All groups combined
	N*	%	N	%	N	%	N	%	
Least probable	27	54.	15	45.5	2	9.1	11	24.4	13634.6
Quite probable	20	40.	16	48.5	15	68.2	30	66.7	2312.5
Most probable	3	6.	2**	6.1	5	22.7	4	8.9	2160.7
General average									2218.3
									2265.6
									13009.9
									3358.5

*N and percentage are for the distribution of answers according to probability and include the blank answers on the date of the decline.

†Weighted average.

**Excludes one blank answer for probability.

SUMMARY AND CONCLUSIONS

Four different groups of students tend to have similar views on the question of the factors which will most probably cause or lead to a future breakdown or decline of Western Civilization. The groups show similarity in their differences of opinion as indicated by the rank order correlations for the frequencies of the different factors mentioned by the various groups, which range from $+.41 \pm .125$ to $+.75 \pm .07$. In the order of importance, for all the subjects, the first five most important factors which may cause a decline of the West are overpopulation, war, political corruption, moral decay and irreligion, too much science and invention or overmechanization.

Group differences in the first five most important factors seem to indicate that certain judgments of the future are colored by the cultural background: (1) U. S. history students mention unequal or unfair division of money and economic problems as the most important factor; (2) general psychology students mention political corruption; (3) mental hygiene students, too much science and invention or overmechanization; (4) sociology students, overpopulation. War, moral decay and irreligion are two of the first five most important factors common to the different groups.

More than two-thirds of the subjects think that a future decline of Western Civilization will not be disastrous but will lead to a more advanced civilization. Almost two-thirds of the subjects think that a decline is either quite probable or most probable.

There is a relation between the judgments of the probability of the decline and the date set by the subjects for the decline. For the least probable judgments, the average year of the decline of Western Civilization is 13634.6; for the quite probable judgments, 2312.5; and for the most probable, 2160.7. With a greater uncertainty as to the occurrence of the event, there is an increasing remoteness in the notion of the time of its occurrence.

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University of Maine
Orono, Maine

LES ATTITUDES ENVERS LE DÉCLIN DE L'OCCIDENT

(Résumé)

Dans cette expérience, on a trouvé que 151 sujets citent la sur-population, la guerre, la décadence morale et l'irréligion, trop de science et d'invention ou la sur-mécanisation, la division inégale ou injuste de l'argent et les problèmes économiques comme les facteurs les plus importants qui sont le plus destinés à amener ou à causer un déclin futur ou débâcle de la Civilisation Occidentale. Les étudiants de psychologie appuient le plus sur la corruption politique; ceux d'hygiène mentale, sur trop de science; ceux d'histoire des Etats-Unis, sur la division de l'argent et les problèmes économiques; ceux de sociologie, sur la sur-population. On suggère que ces différences collectives sont dues au fond cultural des groupes. Les corrélations de l'ordre de rang pour la fréquence des facteurs des quatre groupes varient de $+0,41 \pm 0,125$ à $+0,75 \pm 0,07$.

Un déclin de la Civilisation Occidentale est ou 'assez probable' ou 'très probable' selon les différents groupes en l'ordre suivant: histoire des Etats-Unis (90,9 pour cent), sociologie (75,6 pour cent), hygiène mentale (54,6 pour cent), psychologie (46 pour cent).

Deux d'entre les groupes mettent la date d'un déclin à environ deux siècles de la date actuelle—un accord assez proche avec les prédictions de Spengler. On indique une relation entre la date du déclin et l'assertion de sa probabilité: moins le déclin semble probable, plus la date est éloignée.

ISRAELI

EINSTELLUNGEN DEM NIEDERGANG DES WESTENS
GEGENÜBER

(Referat)

In dieser Untersuchung zeigte es sich, dass 151 Versuchspersonen die Übervölkerung, den Krieg, den moralischen Verfall und die Ungläubigkeit, zu viel Wissenschaft und Erfindung oder die Über-Mechanisierung, die ungleiche oder ungerechte Verteilung des Geldes, und ekonomische Aufgaben als die wichtigsten Einwirkungen erwähnten, die am wahrscheinlichsten einen zukünftigen Niedergang oder Zerfall der westlichen Kultur herbeiführen oder verursachen werden. Studenten der Psychologie betonten besonders die politische Bestechung; Studenten der geistigen Hygiene (mental hygiene) besonders den Überfluss an Wissenschaft; Studenten der Geschichte der Vereinigten Staaten, die Verteilung des Geldes und ekonomische Fragen; Studenten der Soziologie, die Übervölkerung. Es wird darauf hingewiesen, dass diese Gruppenunterschiede sich vielleicht auf den kulturellen Hintergrund der Gruppen zurückführen lassen. Korrelationen zwischen den Häufigkeiten der Betonungen der verschiedenen Einwirkungen bei den verschiedenen Gruppen mit der Rangordnungsmethode (rank order correlations) erstrecken sich von $+0,41 \pm 0,125$ bis $+0,75 \pm 0,07$.

Ein Niedergang der westlichen Kultur wird von den verschiedenen Gruppen in der folgenden Rangordnung als 'sehr wahrscheinlich' oder 'höchst wahrscheinlich' betrachtet: Geschichte der Vereinigten Staaten (90,9%), Soziologie (75,6%), geistige Hygiene (54,6%), Psychologie (46%).

Das Datum eines Niederganges wird von zwei von den Gruppen auf 200 Jahre von jetzt gesetzt—ein Datum welches mit der Voraussagung von Spengler ziemlich genau übereinstimmt. Es scheint eine Beziehung zu bestehen, zwischen dem vermuteten Datum des Niederganges und der Behauptung dessen Wahrscheinlichkeit: Je weniger wahrscheinlich der Niedergang erscheint, desto entfernter wird er verlegt.

ISRAELI

GROUP ESTIMATES OF THE DIVORCE RATE FOR THE YEARS 1935-1975*

From the Psychological Laboratories of the University of Maine

NATHAN ISRAELI

Social psychologists may find worth-while problems in the unexplored field of the psychology of divorce. Our problem is but one aspect of this field. It is particularly concerned with group estimates of the divorce rate from 1935 through 1975. It does not attempt to touch upon possibilities of a scientific prediction of future divorce rates. Students' attitudes towards the future of the divorce rate are studied from the viewpoint of group behavior. Usually, estimates of future events are looked upon as mere blind guesses and it is overlooked that various groups may guess *blindly* more or less alike. Not only that, but notions of future events may be traced to past and present cues and factors; estimates of certain future occurrences may be statistically continuous with known situations and events; the nature of a description of a future event may be correlated to the amount of confidence one has in that estimate.

THE EXPERIMENT

This paper reports upon the sixth and seventh experiments in a general survey of reactions to the future,¹ and which for convenience will be referred to as Experiments VI and VII. The experiments were alike except that, in the former experiment, data were given for each question for every five years from 1890 through 1929,² and in the latter, data for 1929 only were given. This

*Accepted for publication by Carl Murchison of the Editorial Board and received in the Editorial Office, August 17, 1931.

¹Other reports are forthcoming. See the list of references at the end of this paper.

²Data for the divorce rate were taken from the World Almanac, 1930. No data were available for the year 1930, as in the case of the other questions. In fact, the 1930 information was just published in the newspapers. According to the Census Bureau's figures, there were 1,128,180 marriages in 1930, and 1,232,559 marriages in 1929. And the 1930 divorces numbered 191,630 against 201,468 in 1929. The newspapers took for granted a decline in the divorces without attention to the divorce rate which actually increased to 16.99 in 1930 with an increment in the rate of 3.92% of the 1929 rate. See the *New York Herald-Tribune*, July 23, or the *New York Times*, July 24, 1931.

3. These figures (Columns 1-2) are for the average number of divorces per 100 marriages in this country from 1890 through 1929.

Year	No. Divorces per 100 marriages	Year	No. Divorces per 100 marriages
1890	5.9	1935	
1895	6.5	1940	
1900	7.9	1945	
1905	8.2	1950	
1910	8.8	1955	
1915	10.4	1960	
1920	13.4	1965	
1925	14.8	1970	
1929	16.3	1975	

What will the future average number of divorces per 100 marriages be from the year 1935 through the year 1975? Write down your estimate of the future average number in the fourth column,

FIGURE 1

FORM FOR THE DIVORCE QUESTION USED IN EXPERIMENT VI

divorce-rate question is only one of four parts of the experiments which also included estimates for every five years from 1935 through 1975 of the future gross tonnage of the world's merchant fleets, of the total cost of the U. S. Navy, of the growth of population in New York City, Boston, and Los Angeles. The form used in Experiment VI for question 3, future divorce rates, is given in Figure 1. In this experiment, there is a rough symmetry of the past and future year ranges, which are equal and have a quinquennial progression. The subject is required to complete the series and write his estimate for the future years of the divorce rate. In the other experiment, the past data are limited to the last known and most recent data only, to 1929. The form used in this experiment is given in Figure 2.

3. In 1929 there were 16.3 divorces per 100 marriages in this country. What will the future average number of divorces per 100 marriages be from the year 1935 through the year 1975? Write down your estimate of the future average number in the second column.

Year	No. Divorces per 100 marriages
1935	
1940	
1945	
1950	
1955	
1960	
1965	
1970	
1975	

FIGURE 2

FORM FOR THE DIVORCE QUESTION USED IN EXPERIMENT VII

The subjects were instructed to answer the questions to their best ability and judgment, to indicate on the paper whether they felt *certain*, *fifty-fifty*, or *uncertain* about their estimates, and to state briefly the factors which entered into the decision about the future divorce rates.

Four groups, two general psychology and two sociology classes, were used. With overlap avoided, for statistical convenience, data of the two sociology classes were combined. In these experiments, there were 148 subjects, comprising 49 Psychology-A (only 47 in Experiment VII), 49 Psychology-B (only 45 in Experiment VII) and 50 sociology students.

All groups participated in both experiments. Sociology and Psychology-A had Experiment VII before Experiment VI. Psychology-B, however, took Experiment VI first. In the case of the sociology group, Experiment VII was given directly before Experiment VI. Psychology-A had Experiment VI five days after Experiment VII; Psychology-B, Experiment VII seven days after Experiment VI.

AVERAGE RATE OF DIVORCE 1935-1975

Our groups have common notions about the future of the divorce rate from 1935 through 1975. They all believe that the number of

TABLE 1

QUINQUENNIAL AVERAGE DIVORCE RATES FOR 1935-1975 IN EXPERIMENT VI, WITH DATA,* AND IN EXPERIMENT VII, WITHOUT DATA,† ACCORDING TO THE GROUPS

Year	Psychology-A		Psychology-B		Sociology	
	Exp. VI	Exp. VII	Exp. VI	Exp. VII	Exp. VI	Exp. VII
1935	17.91	18.61	18.19	17.76	18.10	18.16
1940	18.63	20.34	19.69	19.66	20.37	20.27
1945	19.81	21.24	20.64	20.50	22.58	22.83
1950	20.47	22.26	20.94	20.95	24.45	24.60
1955	20.75	23.76	20.91	20.85	25.73	26.14
1960	21.76	23.19	22.32	20.44	26.83	27.53
1965	22.67	23.88	21.72	20.77	26.76	28.45
1970	23.18	24.36	21.93	20.27	27.45	29.10
1975	23.96	23.94	22.23	20.54	27.82	29.53
Av.	21.02	22.40	20.95	20.19	24.45	25.18
σ	1.94	1.82	1.30	1.00	3.26	3.80
\bar{V}	9.23	8.14	6.20	4.96	13.32	15.10

*1890-1929

†1929 only

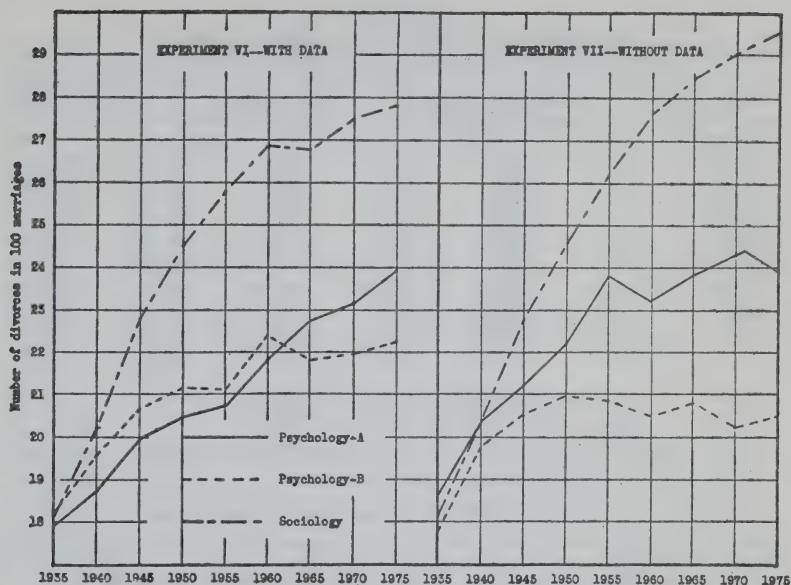


FIGURE 3

QUINQUENNIAL AVERAGE RATES OF DIVORCE FOR EXPERIMENT VI (LEFT) AND EXPERIMENT VII (RIGHT) ACCORDING TO THE GROUPS

A graphic representation of the data shown in Table 1.

divorces in a hundred marriages is bound to increase in the future. Many, however, feel that an upper limit must be reached sometime before 1975. Quinquennial average rates of the three groups for both experiments are set forth in parallel columns in Table 1, and are plotted in Figure 3.

Combined average rates of the groups for each experiment show a continuous increase in the quinquennial rate and a constant decline in the quinquennial increment. This negative acceleration is visible in most of the curves in Figure 3. The combined average rate in 1935 starts at 18.12, and finally reaches 24.67 in 1975. (See Table 2.) The increment of the average rate is 1.71 for the first five-year period, 1935-1940, and diminishes to .29 in the last five-year period of 1970-1975.

TABLE 2
PERCENTAGE INCREASE OF THE GENERAL AVERAGE

Year	General average	Increment	Percentage increase
1935	18.12	—	—
1940	19.83	1.71	9.44
1945	21.27	1.44	7.26
1950	22.28	1.01	4.75
1955	23.02	.74	3.32
1960	23.68	.66	2.87
1965	24.04	.36	1.52
1970	24.38	.34	1.41
1975	24.67	.29	1.19

VARIABILITY OF THE ESTIMATES

An analysis of the standard deviations and variability coefficients of the quinquennial average rates points to an increasing variability in estimation of divorce rates with increasing remoteness in the future period. Least scatter of individual judgments within the groups is found for the earlier future years, and most scatter for the later future years. The standard deviations and the variability coefficients progressively increase from one five-year period to another. An increasing diversity of individual opinion, less group uniformity, more blindness in the guessing are implied or suggested by this increasing variability. The data are in Tables 3 and 4.

TABLE 3
STANDARD DEVIATIONS OF THE QUINQUENNIAL AVERAGE DIVORCE RATES FOR EXPERIMENTS VI AND VII ACCORDING TO THE GROUPS

Year	Psychology-A		Psychology-B		Sociology	
	Exp. VI	Exp. VII	Exp. VI	Exp. VII	Exp. VI	Exp. VII
1935	2.33	3.03	1.86	1.22	2.63	2.86
1940	2.77	5.82	1.64	3.06	4.26	4.69
1945	4.01	7.00	3.37	3.30	6.86	8.60
1950	5.51	5.75	6.17	5.71	8.56	9.77
1955	6.81	14.00	6.57	6.94	10.31	11.41
1960	8.86	6.19	9.44	8.30	12.80	14.09
1965	10.42	12.94	10.45	9.88	15.12	16.91
1970	13.35	10.86	11.84	10.65	18.32	21.32
1975	19.49	6.89	13.74	13.59	16.58	22.30

TABLE 4

VARIABILITY COEFFICIENTS OF THE QUINQUENNIAL AVERAGE DIVORCE RATES FOR EXPERIMENTS VI AND VII ACCORDING TO THE GROUPS

Year	Psychology-A		Psychology-B		Sociology	
	Exp. VI	Exp. VII	Exp. VI	Exp. VII	Exp. VI	Exp. VII
1935	12.99	16.27	10.20	6.86	14.55	15.72
1940	14.85	28.61	8.32	15.57	20.93	23.15
1945	20.26	32.98	18.26	16.09	30.36	37.68
1950	26.90	25.84	29.48	27.25	25.01	39.73
1955	32.83	58.92	31.43	33.29	40.07	43.20
1960	40.71	26.69	42.30	50.59	47.71	51.18
1965	45.96	54.19	48.11	47.58	56.50	59.44
1970	57.59	44.58	53.99	52.54	66.74	73.26
1975	81.34	28.78	61.81	66.17	59.60	75.52
Av.	37.05	35.21	33.68	35.10	40.16	46.54
σ	20.95	13.41	18.24	19.07	17.52	19.37
V	56.55	38.10	54.16	54.33	43.63	41.62

TYPES OF ESTIMATES

Estimates of the 1935-1975 divorce rates may be roughly distributed according to the following three types of estimate: (1) Type A, a continuous quinquennial increase, (2) Type B, first an increase then a decrease, and (3) Type C, a continuous quinquennial decrease. This classification is a suggestive one and is not a hard-and-fast one, and fails to admit of many an individual variant. A distribution of the 148 individual estimates obtained in each experiment shows that the percentage composition of these three types of estimates remains approximately the same for the different experiments. According to Table 5, approximately half of the subjects are of Type A, continuous quinquennial increase; not quite as many are of Type B, increase-decrease; few are of Type C, straight decrease.

This analysis may indicate that the increasing variability with greater futurity is, for one thing, due to widening of the gaps between these types, with greater futurity.

DIFFERENCES IN GROUP ESTIMATES

The estimated divorce rates for the years 1935-1975 are higher for sociology than for psychology students. For the former, the general average divorce rate for 1935-1975 is 24.45 in Experiment VI and 25.18 in Experiment VII; for Psychology-A, 21.02 and

TABLE 5
PERCENTAGE DISTRIBUTION OF ESTIMATE TYPES

Type of estimate	Psychology-A		Psychology-B		Sociology	
	Exp. VI	Exp. VII	Exp. VI	Exp. VII	Exp. VI	Exp. VII
Decrease	14.3	14.9	10.2	8.9	14.0	10.0
Increase-decrease	32.7	44.7	38.8	53.3	40.0	36.0
Increase	53.1	40.4	51.0	37.8	46.0	54.0

TABLE 6
RELIABILITY OF GROUP DIFFERENCES

Groups compared	Differences in the general average of the quinquennial average divorce rates				Differences in the general average of the quinquennial variability coefficients			
	Exp. VI		Exp. VII		Exp. VI		Exp. VII	
	D	D	D	D	D	D	D	D
	σ diff.		σ diff.		σ diff.		σ diff.	
Psychology-B and Psychology-A	-.07	.09	-2.21	3.19	-3.37	.36	-.10	.01
Sociology and Psychology-A	3.43	2.72	2.68	1.91	3.11	.34	11.33	1.44
Sociology and Psychology-B	3.50	3.00	4.99	3.81	6.48	.77	11.44	1.26

22.4; for Psychology-B, 20.95 and 20.19. The sociology students are strikingly more convinced of the future increase of the divorce rate.³ Both psychology groups parallel each other closely in their quinquennial average rates, and show much greater similarity than would either group compared to the sociology one. Figure 3 shows graphically how the sociology estimates uniformly range higher than either those of Psychology-A or Psychology-B.

Differences in the general average of the quinquennial average divorce rates of these groups are most marked and reliable when the sociology and either one of the psychology groups are compared, as in Table 6. The difference in the general average rate between the psychology groups is only .07 in Experiment VI, and 2.21 in Experi-

³For other differences between these same groups, see reports on other experiments in this series. This group was available through the courtesy of its instructor, Miss J. Ashworth. It had already taken up the divorce question in the course.

TABLE 7

A COMPARISON OF COMBINED QUINQUENNIAL AVERAGE DIVORCE RATES IN EXPERIMENTS VI AND VII

	Experiment VI with data*	Experiment VII without data†
1935	18.07	18.18
1940	19.56	20.09
1945	21.01	21.52
1950	21.95	22.60
1955	22.46	23.58
1960	23.64	23.72
1965	23.72	24.37
1970	24.19	24.58
1975	24.67	24.67

*1890-1929

†1929 only

TABLE 8

RELIABILITY OF DIFFERENCES IN ESTIMATES WITH AND WITHOUT DATA

Group	Comparison of the general average of the quinquen- nial average divorce rates		Comparison of the general average of the quinquen- nial variability coefficients	
	D^*	D	D	D
		$\sigma \text{ diff.}$		$\sigma \text{ diff.}$
Psychology-A	-1.38	1.55	1.84	.22
Psychology-B	0.76	1.39	-1.42	.16
Sociology	-0.73	0.43	-6.38	.73

*Differences between Experiment VI, with data, and Experiment VII, without data.

ment VII. However, between sociology and Psychology-A, it is 3.43 and 2.68 in Experiments VI and VII, respectively; between sociology and Psychology-B, 3.5 and 4.99.

COMPARISON OF RESULTS IN EXPERIMENTS VI AND VII

Hardly any significant differences, on the whole, are found in estimates of future divorce rates whether based on 1890-1929 or only on 1929 data. This can be seen in Table 7, Figure 3, and Table 8. It is easy to conjecture that "divorce is in the air," becoming more and more resorted to, and hence that, data or no data for years previous to 1929, one is just as likely to expect a higher divorce rate in the future. This expectation seems to be a common one to the several groups and is an environmental effect, an illustration of uniformity in group estimates of future events.

FACTORS INVOLVED IN THE ESTIMATES

Introspection by Psychology-A and sociology students on the factors involved in their decisions as to the future divorce rates, 1935-1975, may help to explain the estimates made, may indicate whether they are after all mere blind guesses. As a matter of fact, a number of subjects are convinced of their viewpoints and have much conviction in their estimates: this is blind guessing plus conviction. Type A estimates, those who expect a decrease in the future rates, think that somehow companionate marriage, and reeducation will serve to cut down the divorces in the future. Type B estimates, increase-decrease, explain that a limit must be reached sooner or later, since revisions in marriage and divorce laws and codes can be anticipated, and, possibly, more discrimination in marriage, a change in the attitude of people and in the group mores may take place. To cite some introspections:

Divorce, being an indication that marriage has lagged behind other factors in progress, will continue to increase until the form of marriage has become suited to the state of civilization.

Human nature is the same the world over . . . no extremes will occur.

Type A, continuous increase, mentions all sorts of reasons, even companionate marriage, which is also that of Type C. The following introspection maps out possible future developments in the divorce-marriage situation:

Companionate marriage, divorce by mutual consent, time lessened, birth control legalized, time not required, no court necessary. (*Thus*) 1935, companionate marriage; 1940, divorce by mutual consent; etc.

And divorces are simply bound to increase. That is the drift of the Type A introspections.

Has been a steady increase in divorce since 1800 and every reason to believe the same will continue, because of the ease in obtaining divorce today.

Owing to great family disorganization problems caused by new social conditions, the rise will be steady until family changes have caught up which will probably not be adjusted until after 1975.

TABLE 9
PERCENTAGE UNCERTAINTY-CERTAINTY DISTRIBUTION

Certainty	Psychology-A		Psychology-B		Sociology	
	Exp. VI	Exp. VII	Exp. VI*	Exp. VII	Exp. VI	Exp. VII
Uncertain	30.6	51.1	—	75.6	44	46
Fifty-fifty	32.7	40.4	—	22.2	32	34
Certain	24.5	8.5	—	2.2	24	20
Unclassified	12.2					

*No data sought

TABLE 10
QUINQUENNIAL AVERAGE DIVORCE RATES FOR 1935-1975 ACCORDING TO
DIFFERENCES IN THE CERTAINTY OF JUDGMENTS*

Year	Exp. VI—with data†			Exp. VII—without data		
	Uncertain**	Fifty-fifty	Certain	Uncertain	Fifty-fifty	Certain
1935	17.73	18.66	18.04	17.71	18.51	18.60
1940	19.59	21.92	19.76	19.61	20.64	21.15
1945	21.55	24.44	21.93	22.09	23.30	23.73
1950	23.05	26.46	24.33	22.62	25.82	27.10
1955	23.34	28.91	25.85	23.98	27.84	28.22
1960	23.36	31.98	26.32	24.86	29.33	30.60
1965	24.22	30.76	26.09	26.23	29.12	32.40
1970	24.62	32.49	25.93	26.78	29.12	34.40
1975	24.45	33.32	26.65	27.33	28.46	36.40
Av.	22.43	27.66	23.88	23.47	25.79	28.07
σ	2.28	4.84	3.00	3.08	3.85	6.09
V	10.17	17.51	12.58	13.12	14.92	21.70

*For the sociology group only.

†Experiment VII given directly before Experiment VI.

**For N see Table 9.

DIFFERENCES IN CERTAINTY OF ESTIMATES OF FUTURE DIVORCE RATES

The estimates are distributed in Table 9 according to the type of certainty. The sociology group tends to maintain the same distribution of certain, fifty-fifty, and uncertain estimates in both experiments; Psychology-A becomes more certain, after an interval of five days, when it is given, in addition, data from 1890-1929. An analysis can be made of the relation between the average rate of divorce and the amount of certainty in the estimate. This is done, in Table 10, for sociology only. This group had Experiment VII first, then Experiment VI.

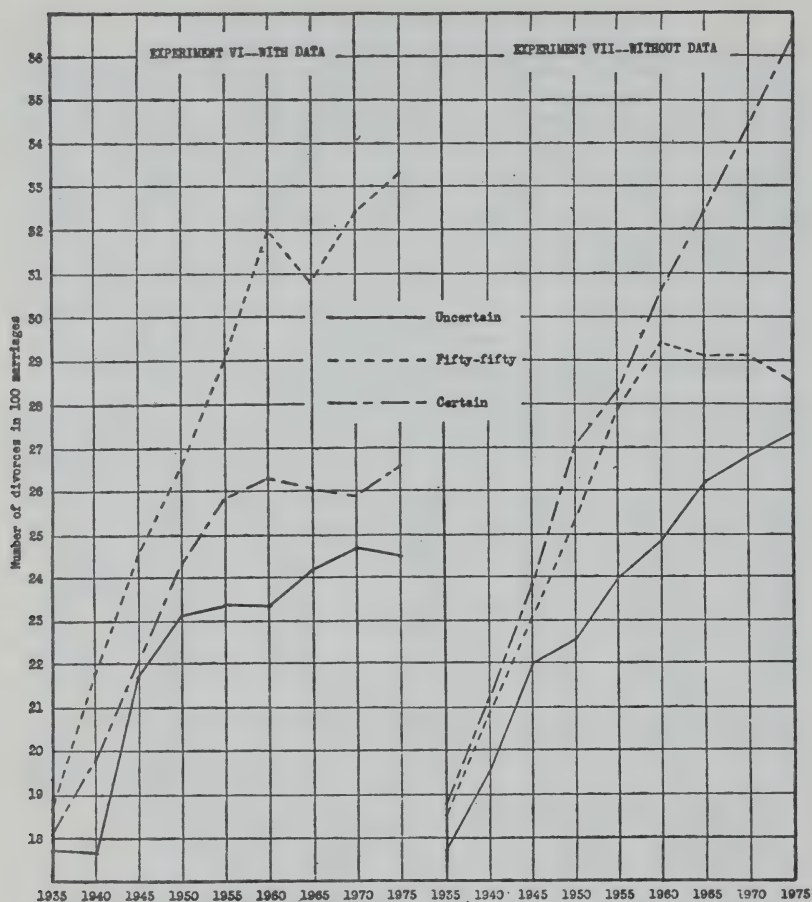


FIGURE 4

QUINQUENNIAL AVERAGE RATES OF DIVORCE FOR EXPERIMENT VI (LEFT) AND EXPERIMENT VII (RIGHT) ACCORDING TO THE DEGREE OF CERTAINTY
A graphic representation of the data shown in Table 10.

In Experiment VII, there is a uniform tendency for the sociology group to have its *certain* estimates climb higher than the *fifty-fifty* ones, and for the *fifty-fifties* to range higher than the *uncertain* ones. In Experiment VI, the *fifty-fifty* estimates are highest, next follow the *certain*, and both types are higher than the *uncertain* ones. This is graphically shown in Figure 4.

TABLE 11

RELIABILITY OF DIFFERENCES IN DIVORCE-RATE ESTIMATES VARYING FROM UNCERTAINTY TO CERTAINTY

Compared estimates	Exp. VI—with data		Exp. VII—without data	
	D^*	$\frac{D}{\sigma \text{ diff.}}$	D	$\frac{D}{\sigma \text{ diff.}}$
Fifty-fifty and uncertain	5.23	2.93	2.32	1.41
Certain and uncertain	1.45	1.15	4.60	2.02
Fifty-fifty and certain	3.78	1.99	—2.28	0.95

*Difference in general average of the quinquennial average divorce rates, 1935-1975, for the sociology group only.

Similar differences, coincidentally, can be found in the standard deviation and the variability coefficient of all the quinquennial average rates.

The differences between the certainty types of estimates of the average divorce rates for 1935-1975 are quite reliable. $\frac{D}{\sigma \text{ diff.}}$ ranges from 0.95, for a comparison of the *fifty-fifty* and *certain* judgments in Experiment VII, to 2.93, for the comparison of the *fifty-fifty* and *uncertain* judgments in Experiment VI. (See Table 11.)

SUMMARY AND CONCLUSIONS

This paper reports upon the sixth and seventh experiments in a general survey of reactions to the future. Experiment VI calls for estimates of the number of divorces in a hundred marriages, the divorce rate, for every five years from 1935 through 1975 and is the same as Experiment VII, except that in the former experiment data on the divorce rate from 1890-1929 are given, and in the latter, only data for 1929. There were three groups of subjects: sociology, Psychology-A, and Psychology-B students.

1. Our groups have common notions about the future of the divorce rate from 1935 through 1975. Divorce is bound to increase. A negative acceleration in the estimates of the future divorce rates is found in the combined average rates of the groups.

2. An increasing variability of estimates is found with increasing remoteness in the future period judged.

3. There is an approximate constant percentage composition in the two experiments of the three types of estimates: Type A, increase; Type B, increase-decrease; Type C, decrease. Half the subjects are of Type A, not many are of Type C.

4. Average rates of the sociology group uniformly and significantly range higher than those of either psychology group.

5. Estimates in Experiment VI are almost the same as those in Experiment VII.

6. The drift of Type A introspections is that divorce is on the increase and will continue to increase in the future. Type B is of the same opinion except that it believes that an upper limit will be reached before 1975. Companionate marriage is an ambiguous factor as it is mentioned by some of Types A and C.

7. An analysis of the data of the sociology group shows that the average divorce rates of the *certain* estimates range higher than the *fifty-fifty* judgments in Experiment VII and lower than the *fifty-fifty* judgments in Experiment VI. Divorce rates of the *uncertain*

estimates are the lowest of all. For these differences, $\frac{D}{\sigma_{diff}}$ varies from 0.95 to 2.93.

Coincidentally, there is a similar relation between the variability and certainty of the estimates.⁴ More certain estimates are more variable than less certain estimates.

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University of Maine
Orono, Maine

⁴Considering the variability coefficients and standard deviations of each series of quinquennial average rates as are given at the bottom of Table 10.

DES ESTIMATIONS COLLECTIVES DES PROPORTIONS DE
DIVORCES POUR LES ANS 1935-1975

(Résumé)

C'est une étude des attitudes envers le divorce et de certains traits des prédictions collectives des événements futurs. Trois différents groupes de sujets ont estimé le nombre de divorces pour cent mariages aux États-Unis pour chaque période de cinq ans de 1935 à 1975. Dans une expérience, on a donné les proportions de divorces de 1890 à 1929 aux sujets; et dans une autre expérience, on ne leur a donné que la proportion de 1929. Selon les estimations moyennes des groupes, la proportion de divorces pendant 1935-1975 deviendra toujours plus grande avec un accroissement constamment plus petit. Les estimations sont devenues plus variables avec une futurité croissante. Elles ont indiqué, en général, ou un accroissement continu, un décroissement continu, ou d'abord un accroissement et puis un décroissement. Selon les introspections, plusieurs ont cru qu'il faut que la proportion de divorces devienne de plus en plus grande. Le mariage d'essai ("companionate marriage") a été cité comme facteur de leurs estimations par ceux qui croient à un accroissement futur de la proportion, ainsi que par ceux qui en croient à un décroissement. Les proportions des étudiants de sociologie ont été plus grandes que celles des étudiants de psychologie. L'analyse des estimations du groupe des étudiants de sociologie montre une relation entre la proportion estimée et le degré de confiance en leurs jugements rapporté par les sujets. En général, plus le jugement a été certain, plus la proportion estimée a été grande.

ISRAELI

GRUPPENVORANSCHLÄGE DER HÄUFIGKEIT DER EHESCHIED-
UNGEN DER JAHRE 1935 BIS 1975

(Referat)

Es wird hier Bericht erstattet über eine Untersuchung von Einstellungen der Ehescheidung gegenüber und von gewissen Eigenschaften der Gruppenvoranschläge (group predictions) zukünftiger Ereignisse. Drei verschiedene Versuchsgruppen machten für jede fünf Jahre Schätzungen der Zahl der Ehescheidungen per 100 Ehen in den Vereinigten Staaten von 1935 bis einschliesslich 1975. In einem Versuch erhielten die Versuchspersonen die Ehescheidungshäufigkeitsprozente (divorce rates) für die Jahre von 1890 bis einschliesslich 1929; in einem anderen Versuch wurde nur der Prozent für das Jahr 1929 gegeben. Den durchschnittlichen Abschätzungen der Gruppen gemäss wird die relative Ehescheidungsfrequenz (divorce rate) während 1935-1975 fortwährend zunehmen, aber in immer geringerem Masse. Mit zunehmender Entfernung der berücksichtigten Jahre nehmen die Abschätzungen an Variabilität zu. Im Allgemeinen wiesen sie auf eine fortwährende Zunahme, eine fortwährende Abnahme, oder zuerst auf eine Zunahme und dann auf eine Abnahme hin. Den Selbstbeobachtungen nach fühlten viele, dass die Zunahme in der relativen Ehescheidungsfrequenz weiter beharren müsse. Sowohl die Versuchspersonen, die eine zukünftige Zunahme, wie die, die eine zukünftige Abnahme in der relativen Häufigkeit der Ehescheidungen erwarteten, berücksichtigten in ihren Schätzungen die Einwirkung der Probeehen (companionate marriages). Die Schätzungen der Studenten der Soziologie waren höher, als die der Studenten der Psychologie. Eine Analyse der Schätzungen der Soziologengruppe erwies eine Beziehung zwischen der geschätzten relativen Häufigkeit und der Stärke des gemeldeten Vertrauens der Versuchspersonen an ihren eigenen Urteilen. Je gewisser das Urteil, desto höher wurde, im grossen Ganzen, die relative Häufigkeit der Ehescheidungen geschätzt.

ISRAELI

SHORT ARTICLES AND NOTES

A STUDY OF THE NEUROTIC TENDENCIES SHOWN IN DEMENTIA PRAECOX AND MANIC DEPRESSIVE INSANITY

HATTIE NESBIT SMITH

The purpose of this study was to determine whether or not patients diagnosed dementia praecox could be differentiated from those diagnosed manic depressive in terms of their neurotic tendencies. Or, stated in another way, are the neurotic tendencies of the dementia praecox patient different from those of the manic depressive?

In order to obtain an index of the neurotic tendencies of manic depressive and dementia praecox patients the Personality Schedule (1) compiled by L. L. Thurstone and Thelma Gwinn Thurstone was filled in by 56 patients diagnosed dementia praecox and by 26 patients diagnosed manic depressive insanity. These groups were patients of the Illinois State Hospital at Kankakee, Illinois. The Schedules were filled in under the direct supervision of the nurses of the Illinois School of Psychiatric Nursing. By having the nurses who were in daily contact with the patients supervise the filling in of the Schedule it is believed that more truthful statements of fact resulted than would have been obtained if a stranger had been in charge of the work and if the patients had felt that they were being subjected to an experimental study. The Schedule was presented to each patient individually when he was in a most cooperative mood. If he became tired or disturbed during the procedure the Schedule was laid aside until a more favorable time. In this way the element of error was reduced to some extent. However, it is possible that some deception entered into the situation but everything possible was done to reduce it to a minimum.

FREQUENCY DISTRIBUTION OF SCORES

The total score for the Personality Schedule is the total number of neurotic answers returned by the subject. The maximum is 223, since there are so many questions in the Schedule. We found that there was a variation in total score from 10 to 135 in the group diagnosed dementia praecox and a variation from 15 to 125 in the group diagnosed manic depressive.

In Table 1 we have the frequency distribution of total scores in the Personality Schedule for the two groups. The first distribution shows the frequencies for the dementia praecox patients. The second distribution represents the manic depressive group.

TABLE 1
FREQUENCY DISTRIBUTION OF SCORES IN THE PERSONALITY SCHEDULE

<i>Personality score</i>	<i>Dementia praecox</i>	<i>Manic depressive</i>
10	2	0
15	3	2
20	1	2
25	3	1
30	1	1
35	3	0
40	3	1
45	5	0
50	11	1
55	1	2
60	2	0
65	1	2
70	1	4
75	3	0
80	3	0
85	3	0
90	3	0
95	0	0
100	0	1
105	5	4
110	0	2
115	1	1
120	0	1
125	0	1
130	0	0
135	1	0
Total	56	26

In Table 2 the constants for the distribution are summarized. The mean score for the manic depressive group is 70.5 and the mean score for the dementia praecox group is 58.30. The standard deviations of the two distributions are also listed, the difference between the two means, the probable error of this difference, and the ratio between the difference and its probable error. If the difference between the mean scores for dementia praecox patients and manic depressive patients may be interpreted directly by its face value, we should conclude that manic depressive patients exhibit more neurotic tendencies than do the dementia praecox patients.

EXPERIMENTAL PROCEDURE

In order to determine if the Personality Schedule had any differentiating value, the frequency of neurotic answers appearing in the Schedules of 26 dementia praecox patients and of 26 manic depressive patients were tabulated. In Table 3 is summarized the frequency of the neurotic answers

TABLE 2
GROUP COMPARISONS BY MEANS OF THE PERSONALITY SCHEDULE

	<i>N</i>	Mean	σ	<i>Diff.</i> <i>m</i>	<i>P.E.</i> <i>diff.</i>	<i>Diff.</i> <i>P.E.</i> <i>diff.</i>
Manic depressive	26	70.57	35.60			
Dementia praecox	56	58.30	29.05	12.27	5.34	2.29

for each of the questions contained in the Personality Schedule. Column 1 gives the number of the question. Column 2 gives the number of times the question was checked by the manic depressive group. Column 3 gives the number of times it was checked by the dementia praecox group; Column 4, the neurotic answer; and Column 5, the question.

TABLE 3
THE FREQUENCY OF THE NEUROTIC ANSWERS FOR EACH OF THE QUESTIONS
IN THE PERSONALITY SCHEDULE

No.	M.D.	D.P.	Ans.	Questions
1	6	7	(yes)	As a child did you like to play alone?
2	13	5	(no)	Do you usually control your temper?
3	16	6	(yes)	Do you get stage fright?
4	3	3	(no) (?)	Have your relations with your mother always been pleasant?
5	15	7	(yes)	Are you troubled much by constipation?
6	16	6	(yes) (?)	Do you feel that life is a great burden?
7	17	5	(yes)	Have you ever had the habit of stuttering?
8	11	3	(no) (?)	Do you get on well with your brothers and sisters?
9	17	7	(yes)	Does your heart sometimes sound in your ears so that you cannot sleep?
10	21	11	(no)	Do you take responsibility for introducing people at a party?
11	16	10	(yes)	Do you think most people are self-seeking or malicious?
12	18	7	(yes)	Do you find it difficult to get rid of salesmen?
13	15	6	(yes)	Do you have difficulty in starting conversation with a stranger?
14	16	2	(yes)	Do you lose your head easily in a dangerous situation?
15	18	14	(no)	Do you laugh easily?
16	8	9	(yes)	Do you worry too long over humiliating experiences?
17	13	5	(no)	Are you careful not to say things to hurt people's feelings?

TABLE 3 (*continued*)

No.	M.D.	D.P.	Ans.	Questions
18	20	14	(no)	Are you sometimes the leader at a social affair?
19	17	3	(yes)	Are your day-dreams about improbable occurrences?
20	13	5	(yes)	Do you usually get turned around in a new place?
21	18	10	(yes)	Do you often feel lonesome, even when you are with other people?
22	15	9	(yes)	Do you love your father more than your mother?
23	20	9	(yes)	Do you consider yourself a rather nervous person?
24	15	13	(yes)	Are you afraid of falling when you are on a high place?
25	13	11	(no)	Are you interested in meeting a lot of different kinds of people?
26	13	5	(yes)	Do a great many things frighten you?
27	18	13	(yes) (?)	Have you ever had a nervous breakdown?
28	18	9	(yes)	Are your feelings easily hurt?
29	11	5	(yes)	Are you easily shocked by sexual topics, risqué stories, and the like?
30	14	6	(yes)	Do you keep in the background on social occasions?
31	14	4	(yes)	Do ideas often run through your head so that you cannot sleep?
32	3	7	(yes)	Do you have the habit of leaving a lot of tasks unfinished?
33	12	6	(yes)	Have you found books more interesting than people?
34	13	4	(yes)	Are you frequently bothered by indigestion?
35	11	6	(yes) (?)	Are you ever bothered by a feeling that things are not real?
36	16	7	(yes)	Are there many people that you dislike intensely?
37	19	18	(yes)	Do you ever feel an awful pressure in or about your head?
38	15	20	(no)	Are you usually cool and composed in a dangerous situation?
39	18	6	(yes)	Are you frequently burdened by a sense of remorse?
40	10	11	(yes)	Do people think you are selfish?
41	13	21	(yes)	Does it upset you to lose in a competitive game?
42	13	9	(no)	Can you sit still without fidgeting?
43	13	22	(no)	Do you usually trust people?
44	14	18	(yes)	Do you lose your temper quickly?
45	1	22	(no)	Is your mother's nature usually cheerful?
46	6	7	(yes)	Do you get rattled easily?
47	6	6	(yes)	Do you worry over possible misfortunes?
48	5	16	(yes)	Do you usually feel fatigued when you wake up in the morning?
49	22	19	(no)	Can you stand disgusting smells?

TABLE 3 (*continued*)

No.	M.D.	D.P.	Ans.	Questions
50	4	7	(yes)	Do you ever talk in your sleep?
51	3	7	(yes)	Does it make you uneasy to go into a tunnel or subway?
52	3	21	(yes)	Do your feelings alternate between happiness and sadness without apparent reason?
53	11	6	(yes)	Are you often afraid of contracting disease?
54	5	8	(yes)	Do you get tired of amusements quickly?
55	3	4	(yes)	Are you frequently worried about religion?
56	4	6	(yes) (?)	Have you ever had an arm or leg paralyzed?
57	3	6	(yes)	Are you troubled with shyness?
58	14	0	(yes) (?)	Have you ever been afraid of going insane?
59	3	4	(yes)	Do you like indoor sports better than outdoor sports?
60	1	2	(yes)	Did you ever have St. Vitus' dance?
61	14	9	(yes)	Do people find fault with you more than you deserve?
62	24	9	(yes)	Do you find it necessary to watch your health carefully?
63	3	0	(yes)	Are you often frightened in the middle of the night?
64	3	5	(yes)	Does it make you uneasy to sit in a small room with the door shut?
65	5	8	(yes)	Have you ever seen a vision?
66	21	6	(yes)	Do you often have bad pains in any part of your body?
67	9	11	(yes)	Do you know of anybody who is trying to do you harm?
68	2	3	(yes)	Have you ever been afraid that you are sexually inferior to other men (other women)?
69	13	6	(yes) (?)	Were your parents partial to any of your brothers or sisters?
70	12	6	(yes)	If you come late to a meeting would you rather stand or leave than take a front seat?
71	7	2	(yes) (?)	Did you ever have a strong desire to commit suicide?
72	6	4	(yes)	Do you tend to nonconformity in your political, religious, and social beliefs?
73	11	4	(yes)	Do you day-dream frequently?
74	1	2	(no)	Did you have a happy childhood?
75	6	33	(yes) (?)	Have you occasionally had to resist an impulse to take things that were not yours?
76	6	3	(yes)	Have you ever been afraid that you might jump off when you were on a high place?
77	3	11	(yes)	Were you your parents' favorite child?
78	8	9	(yes)	Have you ever had spells of dizziness?

TABLE 3 (*continued*)

No.	M.D.	D.P.	Ans.	Questions
79	11	2	(yes)	Do you get discouraged easily?
80	12	5	(yes)	Do you often say things on the spur of the moment and then regret them?
81	13	11	(no)	Have your relationships with your father always been pleasant?
82	13	5	(yes)	Do you have a great many bad headaches?
83	2	2	(yes)	Is there anyone you want to get even with?
84	0	2	(yes)	Does it make you uneasy to cross a bridge over a river?
85	10	6	(yes)	Do your interests change quickly?
86	16	2	(yes)	Did you ever have a strong desire to run away from home?
87	1	1	(yes) (?)	Did you ever have convulsions?
88	5	2	(no)	Can you stand pain quietly?
89	19	12	(yes)	Do you like to be by yourself a great deal?
90	8	5	(yes)	Are you easily moved to tears?
91	20	10	(yes)	Do you allow people to crowd ahead in line?
92	12	19	(yes)	Do you dread the sight of a snake?
93	1	1	(yes)	Did you ever have heart trouble?
94	18	7	(yes)	Does it bother you to have people watch you at work even when you do it well?
95	10	18	(yes)	Do you limit your friendships mostly to your own sex?
96	1	5	(no)	Do you like to take on responsibilities?
97	4	6	(yes)	Have you ever felt as if someone were hypnotizing you and making you act against your will?
98	16	7	(no)	Can you stand criticism without feeling hurt?
99	6	4	(yes)	Do you have difficulty in making friends?
100	6	3	(yes)	Are you troubled with the idea that people are watching you on the street?
101	0	3	(yes) (?)	Have you had a strong impulse to go and set fire to something?
102	3	4	(yes)	Has any of your family been insane, epileptic, or feeble-minded?
103	6	1	(yes)	Are your day-dreams usually about unpleasant things?
104	0	4	(no)	Can you do the little chores of the day without worrying over them?
105	1	0	(no) (?)	Were you happy when fourteen to eighteen years old?
106	10	12	(yes)	Are you afraid when you have to take drugs?
107	3	1	(yes)	Have you been the scapegoat in the family life?
108	18	2	(yes)	Does your mind often wander badly so that you lose track of what you are doing?

TABLE 3 (*continued*)

No.	M.D.	D.P.	Ans.	Questions
109	14	5	(yes)	Do you have the sensation of falling when going to sleep?
110	20	1	(yes)	Do your eyes often pain you?
111	10	4	(yes)	Do you frequently talk to yourself?
112	3	2	(no)	Can you stand kidding?
113	8	4	(yes)	Are you absentminded?
114	5	13	(yes)	Do you have a great fear of fire?
115	4	6	(no)	Do you make friends easily?
116	3	1	(no)	Have your employers generally treated you right?
117	12	1	(yes)	Do you feel tired most of the time?
118	2	4	(yes)	Do you have great difficulty in finding your way around in the dark?
119	16	7	(yes)	Are you ever bothered by the feeling that people are reading your thoughts?
120	8	3	(yes)	Do you have the habit of contradicting people?
121	10	12	(yes)	Do you prefer participation in competitive intellectual amusements to athletic games?
122	0	1	(no) (?)	Were your parents happily married?
123	9	4	(yes)	Do you think you are often regarded as queer?
124	10	7	(yes)	Have you ever been depressed because of low marks in school?
125	2	4	(yes)	Would you say that you are more or less ignorant of sex?
126	7	3	(yes)	Do you often feel you do not get your chance in social conversation?
127	4	4	(yes)	Are you touchy on various subjects?
128	1	4	(yes)	Would you say that you are cynical about members of the opposite sex generally?
129	7	1	(yes) (?)	Are you troubled by thoughts of death?
130	7	4	(yes)	Do you find it difficult to pass urine in the presence of others?
131	5	11	(yes)	Have your friends ever turned against you?
132	2	1	(yes) (?)	Have you ever been blind, half-blind, deaf, or dumb for a time?
133	4	1	(yes)	Are you physically inferior to your associates?
134	0	2	(yes) (?)	Has any of your family committed suicide?
135	8	3	(yes)	Are you troubled with poor health?
136	12	2	(yes)	Are you often in a state of excitement?
137	1	5	(yes)	Is there a conflict in your nature between sex and morality?
138	13	4	(yes)	Do you ever cross the street to avoid meeting somebody?
139	4	3	(yes)	Do you frequently feel grouchy?

TABLE 3 (*continued*)

No.	M.D.	D.P.	Ans.	Questions
140	5	8	(no)	Do you like to be with other people a great deal?
141	11	6	(no)	Can you stand the sight of blood?
142	3	0	(no)	Are you usually in good spirits?
143	8	5	(yes)	Do you think people have made quite a lot of fun of you?
144	14	4	(yes)	Have you been bothered by vomiting?
145	12	13	(yes)	Do you feel self-conscious when you recite in class?
146	3	2	(no)	Are you thrifty and careful about making loans?
147	3	6	(yes) (?)	Is your mother dissatisfied with her lot in life?
148	19	12	(yes)	Do things often go wrong for you by no fault of your own?
149	2	3	(no)	Do you think you know yourself well from having observed your own mind?
150	12	12	(no)	At a reception or tea do you seek to meet the important person present?
151	14	7	(yes) (?)	Do you ever have a queer feeling as if you were not your old self?
152	18	6	(yes)	Do you often feel just miserable?
153	18	3	(yes)	Does some particular useless thought keep coming into your mind to bother you?
154	5	4	(yes)	Are you bothered much by blushing?
155	3	5	(yes)	Is your head likely to ache on one side?
156	11	7	(yes)	Are you a "crank" about food?
157	1	4	(yes)	When you were young did the other children regard you as "different?"
158	11	2	(yes)	Do you get upset easily?
159	17	2	(yes)	Do you love your mother more than your father?
160	4	2	(yes)	Are you frequently troubled with nightmares?
161	3	2	(yes)	Do you hesitate to volunteer in a class recitation?
162	3	4	(no)	Do you usually feel well and strong?
163	2	1	(yes)	Do you get tired of work quickly?
164	10	21	(yes)	Do you frequently feel that you deserve a better lot than you have?
165	0	1	(yes)	Has any of your family had a drug habit?
166	9	4	(no)	Do you usually sleep well?
167	4	2	(no)	Are you systematic in caring for your personal property?
168	17	3	(yes)	Are you frequently in low spirits?
169	24	5	(no)	Do you enjoy social gatherings just to be with people?
170	3	2	(no)	Do you find your way about easily?
171	11	12	(yes)	Are you shy with boys?

TABLE 3 (*continued*)

No.	M.D.	D.P.	Ans.	Questions
172	1	1	(yes)	Are you shy with girls?
173	1	2	(yes)	Do you mind having your friends see you in the ten-cent store?
174	13	11	(yes)	Do you feel that you are not satisfactorily adjusted to life?
175	7	5	(yes)	Do you dislike to write about yourself even to very close friends?
176	7	5	(yes) (?)	Have you ever had the habit of twitching your face, neck, or shoulders?
177	20	14	(yes)	Do you often experience periods of loneliness?
178	10	4	(yes)	Does criticism disturb you badly?
179	3	2	(no)	Do you feel well rested in the morning?
180	10	14	(no)	Do you ever take the lead to enliven a dull party?
181	8	10	(yes)	Do you often feel self-conscious in the presence of superiors?
182	3	2	(yes)	Do you get tired of people quickly?
183	12	11	(yes)	Would you rather work indoors than outdoors?
184	18	7	(yes)	Do you lack self-confidence?
185	8	10	(yes)	At night are you frequently troubled by the idea that somebody is following you?
186	4	6	(yes)	Do you think you are usually unlucky?
187	5	13	(yes)	Do you find it difficult to speak in public?
188	7	10	(yes)	Was your mother the dominant member of the family?
189	12	4	(yes)	Do you sometimes have shooting pains in the head?
190	20	13	(no)	Do you like to solve puzzles?
191	13	5	(yes)	Do you often have queer, unpleasant feelings in any part of your body?
192	9	4	(no)	Do you usually plan your work ahead?
193	5	4	(no)	Do you usually keep in fairly uniform spirits?
194	4	4	(yes)	Are you frightened by lightning?
195	7	8	(yes)	Do you often feel self-conscious because of your personal appearance?
196	5	4	(no)	If you see an accident are you quick to take an active part in giving help?
197	2	4	(yes)	Do you feel you must do a thing over several times before you leave it?
198	2	4	(yes)	Did you ever have anemia badly?
199	9	3	(yes)	Does it make you uneasy to have to cross a wide street or open square?
200	1	2	(no)	Do you easily learn to find your way about in new places?
201	10	0	(yes)	Are you troubled with feelings of inferiority?

TABLE 3 (*continued*)

No.	M.D.	D.P.	Ans.	Questions
202	16	1	(yes)	Do you often find that you cannot make up your mind until the time for action has passed?
203	1	4	(yes)	Do you often have the feeling of suffocating?
204	14	4	(yes)	Have you any physical defects?
205	8	7	(yes)	Do you think you are regarded as critical of other people?
206	20	6	(yes)	Do you have ups and downs in mood without apparent cause?
207	9	5	(yes)	Do you let yourself go when angry?
208	15	4	(yes)	Do things ever swim or get misty before your eyes?
209	8	3	(no)	Do you often get interested in people you meet?
210	1	0	(no)	Have you a good appetite?
211	6	5	(yes) (?)	Have you ever lost your memory for a time?
212	2	1	(no) (?)	Is your home environment happy?
213	4	0	(yes)	Are you bothered by fluttering of the heart?
214	6	8	(yes)	Are you slow in making decisions?
215	2	3	(yes)	Were you considered a bad boy (or girl)?
216	2	0	(yes)	Do you faint easily?
217	16	14	(no)	Has your family always treated you right?
218	10	13	(yes)	Since you were five years old have you ever had the habit of wetting the bed?
219	3	4	(yes)	Are you frequently troubled with the fear of being crushed in a crowd?
220	15	0	(no)	Are you in general self-confident about your abilities?
221	2	1	(yes)	Do you occasionally have conflicting moods of love and hate for members of your family?
222	7	5	(yes)	Are you generally regarded as indifferent to the opposite sex?
223	1	1	(yes)	Do you ever walk in your sleep?

INTERPRETATION OF RESULTS

Examination of the answers given by the two groups show that the manic depressive group gives the greater number of neurotic answers. In Table 4 are given a list of the 67 most differentiating questions in the Personality Schedule. The questions marked with an asterisk are the ones that the Thurstones considered most diagnostic in their study. The manic depressive group gives the greater number of neurotic answers to 59 of these questions, while the dementia praecox group gives the greater number of neurotic answers to the following eight questions:

- No. 45 Is your mother's nature usually cheerful?
 No. 48 Do you usually feel fatigued when you wake up in morning?
 No. 52 Do your feelings alternate between happiness and sadness without apparent reason?
 No. 77 Were you your parents' favorite child?
 No. 114 Do you have a great fear of fire?
 No. 131 Have your friends ever turned against you?
 No. 164 Do you frequently feel that you deserve a better lot than you have?
 No. 187 Do you find it difficult to speak in public?

From this uneven distribution of questions between the groups it appears that they cannot be differentiated in terms of which questions they answer in a neurotic manner. That is, we cannot conclude that if a patient gives maladjusted answers to certain questions he should be diagnosed manic depressive and if he gives neurotic answers to certain others he should be diagnosed dementia praecox.

CONCLUSION

The difference in frequency of maladjusted answers in these groups is not sufficiently large to conclude that the two groups can be differentiated in terms of their neurotic tendencies. However, the results do show some evidence that the manic depressive group shows more neurotic tendencies than does the dementia praecox group.

TABLE 4

LIST OF MOST DIFFERENTIATING QUESTIONS IN THE PERSONALITY SCHEDULE

No. M.D. D.P. Questions

9	17	7	Does your heart sometimes sound in your ears so you can't sleep?
23	20	9	Do you consider yourself a rather nervous person?
24	13	4	Are you frequently bothered by indigestion?
48	5	16	Do you usually feel fatigued when you wake in the morning?
62	24	9	Do you find it necessary to watch your health carefully?
66	21	6	Do you often have bad pains in any parts of your body?
82	13	5	Do you have many bad headaches?
110	20	1	Do your eyes frequently pain you?
117	12	1	Do you feel tired most of the time?
144	14	4	Have you been bothered by vomiting?
152	18	6	Do you often feel just miserable?*
189	12	4	Do you sometimes have shooting pains in your head?
191	13	5	Do you often have queer unpleasant feelings in any part of your body?

TABLE 4 (*continued*)

No. M.D. D.P.			Questions
204	14	4	Have you any physical defects?
208	15	4	Do things ever swim or get misty before your eyes?
213	4	0	Are you bothered by fluttering of the heart?
5	15	7	Are you bothered much by constipation?
2	13	5	Do you usually control your temper?
3	16	6	Do you get stage fright?*
6	16	6	Do you feel life a great burden?
7	17	5	Have you ever had the habit of stuttering?
8	11	3	Do you get along well with your brothers and sisters?*
13	15	6	Do you have difficulty in starting a conversation with a stranger?*
14	16	2	Do you lose your head easily in dangerous situations?
17	13	5	Are you careful not to say things to hurt people's feelings?
19	17	3	Are your day-dreams about improbable occurrences?
20	13	5	Do you usually get turned around in new places?
26	13	5	Do a great many things frighten you?
28	18	9	Are your feelings easily hurt?*
29	11	5	Are you easily shocked by sexual topics, risqué stories and the like?
30	14	6	Do you keep in the background on social occasions?*
31	14	4	Do ideas often run through your head so that you cannot sleep?*
36	16	7	Are there many people that you dislike intensely?
39	18	6	Are you frequently burdened with a sense of remorse?*
45	1	22	Is your mother's nature usually cheerful?*
52	3	21	Do your feelings alternate between happiness and sadness without apparent reason?*
58	14	0	Have you ever been afraid of going insane?
69	13	6	Were your parents partial to any of your brothers or sisters?*
73	11	4	Do you day-dream frequently?*
77	3	11	Were you your parents' favorite child?*
79	11	2	Do you get discouraged easily?*
80	12	5	Do you often say things on the spur of the moment and regret them?
86	16	2	Did you ever have a strong desire to run away from home?
94	18	7	Does it bother you to have people watch you at work even when you do it well?*
98	16	7	Can you stand criticism without feeling hurt?*
109	14	5	Do you have the sensation of falling when going to sleep?
108	18	2	Does your mind wander badly so that you lose track of what you are doing?*
111	10	4	Do you frequently talk to yourself?

TABLE 4 (*continued*)

No. M.D. D.P.			Questions
114	5	13	Do you have a great fear of fire?
119	16	7	Are you ever bothered by the feeling that people are reading your thoughts?
131	5	11	Have your friends ever turned against you?
136	12	2	Are you ever in a state of excitement?
138	13	4	Do you ever cross the street to avoid meeting somebody?
151	14	7	Do you ever have a queer feeling as if you were not your old self?
153	18	3	Does some particular useless thought keep coming into your mind to bother you?*
158	11	2	Do you get upset easily?
159	17	2	Do you love your mother more than your father?
164	10	21	Do you frequently feel that you deserve a better lot than you have?
168	17	3	Are you frequently in low spirits?*
169	24	5	Do you enjoy social gatherings just to be with people?
184	18	7	Do you lack self-confidence?*
187	5	13	Do you find it difficult to speak in public?
201	10	0	Are you troubled with a feeling of inferiority?*
202	16	1	Do you often find that you cannot make up your mind until the time for action has passed?*
206	20	6	Do you have ups and downs in mood without apparent cause?*
220	15	0	Are you in general self-confident about your abilities?*

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125 H Street
Salt Lake City, Utah

JUDGMENTS OF OCCUPATIONS FROM PRINTED PHOTOGRAPHS

LAWRENCE GAHAGAN

This study is an attempt to find out if reliable judgments of occupations can be made from printed photographs, and to discover the bases for such judgments. Photographs have been used in experiments involving judgments of emotion (2),¹ intelligence (1, 4, 11, 12), character traits (5, pp. 69-80; 7, pp. 114-119), and vocational aptitude and success (8, 9). On the

¹This article contains an historical review of studies of facial expression.

whole, these experiments tend to show that the photograph offers poor criteria for such judgments.²

METHOD OF EXPERIMENTATION

Our method consisted, essentially, of the presentation of printed photographs in series of pairs. The subject was previously informed that each pair of photographs in a series contained members of two given occupational groups, e.g., men of letters and politicians. He was instructed to choose in each pair the members of the given occupational groups, and, furthermore, to report the bases for such judgments. Photographs which were recognized were eliminated from the scores of the subjects concerned.

Photographs of four occupational groups were used, namely, (1) men of science, (2) men of letters, (3) politicians, and (4) business men. Each group was presented in comparison with every other group. Comparisons, consequently, were made between (1) men of science and men of letters, (2) men of science and politicians, (3) men of science and business men, (4) men of letters and politicians, (5) men of letters and business men, and (6) politicians and business men. Five hundred judgments were made for each comparison of groups, or a total of 3000 judgments for the whole experiment. Seventy-three subjects were used, of whom 30 were men and 43 were women, and most of whom were undergraduate college students.

The materials consisted of printed photographs, selected from those appearing in current magazines. In selection the only aim was to avoid those which were mechanically defective or which showed definite criteria, e.g., a man of science wearing a laboratory apron. The photographs were mounted on white cards of uniform size (3" x 5"), each of the four occupational groups containing 31 to 32 photographs.

QUANTITATIVE RESULTS

The compiled results are shown numerically in Table 1. It is seen that, for all six comparisons of groups, more right than wrong judgments were made. The reliabilities of these found differences are indicated by the critical ratios found in the last column of the table.³ These ratios range

²E.g., Anderson (1, p. 154) says that it "seems very doubtful whether for practical purposes intelligence can be gauged by a study of a man's photograph." Gaskill, Fenton, and Porter (4, p. 399) found a median correlation of +0.425 in judgments of intelligence from photographs of boys. Hull (7, p. 119) says that "the results as a whole certainly look bad for the judgment of character on the bases of photographs." Landis and Phelps (9, p. 323) assert that a group of untrained judges failed to make diagnostic judgments of either vocational success or its lack. Johns and Worcester (8, p. 61) conclude that there is, as presently used, "little if any value in a photograph as a means of furnishing information about ability to teach."

³The critical ratio is the ratio of the observed difference of a proportion to the probable error of the expected proportion (6, pp. 248 ff.).

TABLE 1
QUANTITATIVE RESULTS

Occupational groups compared	Number of subjects	Total number of judgments	Number of right judgments	Number of wrong judgments	Proportion of right judgments	Proportion of wrong judgments	Critical ratios
Men of letters and politicians	17	500	369	131	.738	.262	15.8
Men of letters and business men	18	500	364	136	.728	.272	15.2
Men of science and business men	17	500	336	164	.672	.328	11.4
Men of science and politicians	20	500	322	178	.644	.356	9.5
Men of science and men of letters	18	500	297	203	.594	.406	6.2
Politicians and business men	17	500	281	219	.562	.438	4.1

from a high of 15.8 for judgments involving a comparison of men of letters with politicians to a low of 4.1 for comparisons of business men with politicians. In the case of the lowest critical ratio, i.e., 4.1, there are 99.7 chances in 100 that a true difference greater than zero exists (3, p. 135). We conclude, then, that for all comparisons of groups reliable differences are found, but that these differences do not warrant the existence of occupational types.

The amount of difference varies considerably for the several comparisons of groups. The greatest difference is found in the comparison of men of letters with politicians. Almost three-fourths of such judgments were correct. Slightly less contrasting are men of letters and business men. Arranged in decreasing order of contrast are, thirdly, men of science and business men; fourthly, men of science and politicians; fifthly, men of science and men of letters; and, finally, politicians and business men. In the last two cases the amount of contrast is slight.

Two of our groups may be described as *intellectual*, i.e., men of science and men of letters, and two groups as *practical*, i.e., politicians and business men. It is seen that the greatest difference is found in the comparison of dissimilar groups, that is to say, in the comparison of an intellectual with a practical group, and the least difference in the comparison of similar groups, that is, in the comparison of two intellectual or two practical groups.

THE BASES OF JUDGMENT

The bases of judgment showed a great diversity, with reference both to the judgments of the various subjects and to the several judgments of an individual subject.⁴ It is possible, however, to point out certain tendencies in judgment. These tendencies may be broken down into the following overlapping categories:

I. Judgments based upon resemblance to some specific person:

Judged as—	Illustrations—
man of science	<i>resembles Knight Dunlap</i>
man of letters	<i>resembles Theodore Dreiser</i>
	<i>resembles H. L. Mencken</i>
politician	<i>resembles President von Hindenburg</i>
	<i>resembles President Harding</i>
	<i>resembles Senator Penrose</i>
business man	<i>resembles J. P. Morgan</i>

⁴Landis and Phelps (9, p. 324) found that 48% of the judgments of their subjects were due to general impression or "hunch," 32% to resemblance to some acquaintance or specific person, and 22% to some definite physiological feature or features.

II. Judgments based upon correspondence to stereotyped impression:^a

Judged as—	Illustrations—
man of science	<i>a pedagogue</i>
man of letters	<i>ideal of a poet; qualities of an ideal writer</i>
politician	<i>the apotheosis of a politician; a small-town politician</i>
business man	<i>general conception; the type</i>

III. Judgments based upon physiognomical and phrenological inference:

Judged as—	Illustrations—
man of science	{ <i>hair grey from much study; baldheaded from thinking; shape of head</i>
man of letters	{ <i>high forehead; shape of head; fine features</i>
politician	{ <i>length of face below eyes; hanging jowls; massive features</i>
business man	<i>determined chin</i>

IV. Judgments based upon facial expression:

Judged as—	Illustrations—
man of science	{ <i>introvert; intelligent; dull; hopeful; sincere; calm; no mental strain; idealistic; penetrating; faraway look</i>
man of letters	{ <i>introvert; indifferent; arrogant; erratic; hu- mane;; hardboiled; pensive; sensitive; upset, aesthetic; humorous; trying to look thoughtful</i>
politician	{ <i>extrovert; belligerent; worldly; prosaic; uncer- tain; self-assured; domineering; dogmatic; hu- morous; concealed; distrustful; eyes awake and the rest of the face asleep; sober; dissipated; patronizing; bluffer; features express direct con- tact with reality</i>
business man	{ <i>extrovert; hard; appraising; shallow; firm; de- termined; confident; jovial; prosperous; grim; expression shows mental strain</i>

V. Judgments based upon pose or attitude:

Judged as—	Illustrations—
man of science	{ <i>serious attitude posed reading a book; the atti- tude of the head is that of a dreamer</i>
man of letters	<i>indifferent attitude</i>
politician	{ <i>aggressive attitude; speaker's attitude; posed to make a good impression; politicians are used to being photographed; hence a manufactured pose</i>
business man	<i>business man's attitude; erect bearing</i>

^aFor a discussion of social stereotypes see (10, pp. 79-156).

VI. Judgments based upon dress and accessories:

Judged as—	Illustrations—
man of science	<i>eccentric dress; clothes do not fit</i>
man of letters	<i>{ types of spectacles; dressed according to whim; collar does not fit; good taste in dress</i>
politician	<i>pompous dress; derby; striped tie</i>
business man	<i>well tailored; derby; Shriner's pin in his lapel</i>

VII. Judgments based upon bias towards group:

Judged as—	Illustrations—
man of letters	<i>{ when a face pleases me, I classify him as a man of letters</i>
politician	<i>{ I judge certain types of faces which I do not like to be politicians</i>
business man	<i>{ my utter disrespect for business men influences my judgments</i>

VIII. Judgments based upon remote deductions:

Judged as—	Illustrations—
man of letters	<i>{ he looks as if he would travel the South Seas; a Hindoo would more likely be a man of letters than a man of science; a Jew is more apt to be a man of letters than a politician; life has made a great impression upon him</i>
politician	<i>{ he looks like an Irishman; he looks as if he were trying to get votes</i>
business man	<i>he shows the struggle in business</i>

These illustrations show that the bases of judgment are inconsistent. A man of science may be judged *intelligent* or *dull*; a man of letters, *arrogant* or *humane*; a politician, *prosaic* or *worldly*; a business man, *jovial* or *grim*. The experimenter believes that judgment is most frequently the result of total impression, and that the asserted bases are often of the nature of rationalizations of the judgments given.

SUMMARY

Judgments of occupations were made from printed photographs, presented in series of pairs, the subject having been informed as to the occupational groups represented in the pairs. For all comparisons of groups, more right than wrong judgments were made. These differences were found to be reliable, and varied from slight (for comparisons of politicians with men of letters) to moderate (for comparisons of politicians with business men). The differences do not, however, warrant the existence of occupational types.

The asserted bases of judgment were found to be numerous and inconsistent, and are believed to be more frequently rationalizations, i.e., justifications, than the real determinants of judgment.

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University of California
at Los Angeles, California

THE INTELLIGENCE AND ACHIEVEMENT OF MIXED-BLOOD INDIANS

THOMAS R. GARTH

Previous studies of mixed-blood Indians in some instances appear on the surface to indicate that degree of white blood and intelligence are positively correlated to an appreciable extent. One study shows a correlation of .41 between intelligence score when age has been held constant along with school attendance, another shows a correlation of .42 between group IQ and degree of white blood with school grade held constant. But these studies do not indicate the weight that should be given to educational achievement and school placement in the case of mixed-blood Indians.

It is the intention in this study to show just the weight which should be attributed to these factors, achievement and school placement, and their relative importance in comparison with degree of blood.

Such studies are open to the criticism that correlations between degree of

white blood, genealogy, and measured intelligence are after all not to be considered as measuring what they assume to measure, but that social status going with degree of blood is the cause of the positive correlation. Workers among Indians in certain regions are unanimous in saying that the social status of these peoples seems to improve with the degree of white blood. Until such time as this social status can be definitely measured, the conviction will have to remain as that and not proven fact.

THE SUBJECTS AND THE TEST

An examination of Table 1 will reveal the composition of the group in respect of genealogy of the subjects in regard to degree of Indian blood and school placement. It will be noted that in order to get at least five steps in the form of a normal distribution, 65 full-blood Indians and 80 whites were included in the total group of 1022. Consequently, there were only 871 mixed-bloods studied. The degree of blood of these ran from 15/16 to 1/32. The full-bloods and whites were selected at random with a view to composing for them a normal distribution in so far as was possible, for any series.

The school grade composition ranged from 4th to 9th grade. The median age was 14.7 years.

The test which was administered in United States Indian Schools in South Dakota and Oklahoma was the Otis Classification Test which has two features, an intelligence score and an educational achievement score.

THE CORRELATIONS

This study does not undertake to exhaust the possibilities of the data but only to indicate certain correlations between (1) intelligence score, (2) degree of white blood, (3) school grade, (4) achievement score, and (5) age. (See Table 2.)

TABLE 1
SHOWING COMPOSITION OF THE GROUP STUDIED

	Indian blood degree	No.	School grade	No.
Full-bloods	4/4	65	4th	185
Mixed-bloods	15/16-5/8	214	5th	199
Mixed-bloods	1/2-5/16	457	6th	222
Mixed-bloods	1/4-1/32	200	7th	214
Whites	0	86	8th	152
			9th	50
Total		1022		1022
Age range—8-20 yrs. Med. age—14.7 yrs. <i>Q</i> —1.8 yrs.				

TABLE 2
SHOWING VARIOUS CORRELATIONS FOR TOTAL GROUP OF 1022

Intelligence score—1		School grade—3	
Degree of Indian blood—2		Achievement score—4	
Age—5			
$r_{12} = .14$	$r_{13} = .64$	$r_{14} = .82$	$r_{15} = .16$
$P.E. = .02$	.01	.01	.02
$r_{23} = -.06$	$r_{24} = .05$	$r_{25} = -.27$	$r_{34} = .68$
$P.E. = .02$	.02	.01	.01
$r_{25} = .54$	$r_{45} = .22$		
$P.E. = .02$	.02		
<i>Eliminating age</i>			
$r_{12.5} = .19$	$r_{13.5} = .67$	$r_{14.5} = .81$	
$P.E. = .02$	.01	.01	
$r_{23.5} = .11$	$r_{24.5} = .12$	$r_{25.5} = .68$	
$P.E. = .02$	.02	.01	
<i>With age as eliminated</i>			
$r_{12.3} = .16$	$r_{14.3} = .65$	$r_{14.22} = .67$	
$P.E. = .02$	.01	.02	
$r_{14.2} = .82$	$r_{24.3} = .06$		
$P.E. = .01$	.02		
$r_{24.2} = .67$	$r_{13.2} = .66$		
$P.E. = .01$	.01		
$r_{12.24} = .16$	$r_{12.24} = .26$		
$P.E. = .02$	.02		
$R_1(234) = .82$			
$P.E. = .01$			
$x_1 = b_{12.24}x_2 + b_{13.24}x_3 + b_{14.22}x_4$			

$$x_1 = b_{12.24}x_2 + b_{13.24}x_3 + b_{14.22}x_4$$

Substituting

$$x_1 = .088 + .2028 + .6747$$

Weight of

degree=1.0

school grade=2.2

achievement=7.6

Significant and good correlations are to be found in the case of intelligence score and school grade (.64), intelligence score and achievement score (.82), school grade and achievement score (.68), and school grade and age (.54). None of the other correlations are sufficiently high to cause us to pause here to discuss them, except to indicate that degree of blood does not seem to be a strong factor as thus determined.

Since age has been found to be a factor whose relevancy is to be questioned (1), we have eliminated that factor by partialing it out, as, for instance, when we eliminate age when intelligence and degree are considered, the correlation is raised from .14 to .19 (if age is eliminated); that of degree and school grade is raised from —.06 to .11 if age is controlled. With the elimination of age from all combinations our variables become four in number instead of five. But it is to be noted that no great

change is wrought in the coefficients if the factor of age is eliminated excepting to raise them in most cases.

INTERPRETATION

It is to be observed that intelligence score and achievement score correlate rather high (.82) if we control the factor of degree of blood. This high correlation is followed by one of .66 between intelligence score and school grade with degree held constant, and this is in turn followed by one of .67 between school grade and achievement with degree held constant. The last two have been slightly raised when we control degree, and the first remains practically unchanged by partialing out degree. Partialing out degree seems to have only a slight effect on these correlations.

It will be seen that a partial coefficient of .16 is found between intelligence score and degree when school grade is held constant, and one of .06 is found between achievement score and degree if school grade is held constant. These correlations are strikingly different from what has been obtained in the earlier studies by Hunter and Sommermier and Garth *et al.*, for intelligence and degree.

Because of the fact that achievement and intelligence are evidently mutually dependent it is hard to separate the factors with any feeling of confidence as to the significance of the results, but we have a partial correlation of .16 between intelligence score and degree with school grade and achievement score held constant.

If we "lump" all the factors, as degree, school grade, and achievement, and correlate them against intelligence score with a multiple correlation as R_1 (234), we get a correlation of .82. If we ascertain the weight to be assigned to these dependent factors, we have the weight for degree, 1.0; for school grade, 2.2; and for achievement, 7.6. It will be seen that the educational factors are stronger factors in determining intelligence scores of mixed bloods than degree of blood, which is almost negligible.

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University of Denver
Denver, Colorado

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The book consists of three separate studies: Wildness and Savageness in Rats of Different Strains (Stone); Reaction Tendencies Relating to Personality, (Subtitle) A Physiological Study of Anticipation, Excitability, Recuperation, Adaptation, Conditioning, Extinction, and Inhibition in Relation to Personality Differences (Darrow and Heath); and An Attempt to Measure Emotional Traits in Juvenile Delinquency (Landis). In an editor's introduction Lashley apologizes (if we gather his intent correctly) for brigading together these rather odd bedfellows; the explanation has enough reason in it to warrant an acquittal, but the reasonable way to handle them would have been to print the Darrow study as a separate book (206 pages) and the others as journal articles.

The thermomorphic interpretation of human behavior seems still to have an unquestioning support. It is hard to say why this view provokes such an internal upset, for the fundamental assumption that behavior has components that are comparable throughout the phyletic range is not unreasonable. But it is so uncritically taken for granted! The mere statement that it is difficult to obtain human material seems to be regarded as ground for conducting an experiment on rats and taking the results over, hook, bob, and sinker, for the interpretation of human conduct. The converse procedure, of course, is tabu in the best circles; one may not infer from behavior in an animal, indistinguishable from that accompanying astonishment in man, that the animal's experience has anything in common with the man's. This might presumably be justified (but never has been, to my knowledge) by the enunciation of some sort of principle regarding the emergence of new combinations correlated with phyletic position. But perhaps the most annoying inconsistency is the persistent attempt to discredit inferences from the so-called "abnormal" to the "normal"; although it is correct to draw conclusions about child delinquency from savageness in rats, it is preposterous to assume the same mechanism in the college student as in the anxiety-neurotic.

But these free associations take off, not from Stone who did the experiments, but from Lashley who briefly interprets them. Stone studied trapped wild rats, half- and quarter-breeds, albinos of colony stock, and a few other groups, in a more or less standardized handling experiment; he found that his wildness and savageness indexes decreased for all strains in a typical learning curve, and that the curves for the (a priori) wilder strains remained persistently above those of the less wild, suggesting heredi-

tary differences. Experiments on the hiding tendency confirm these findings. The experiment is a straightforward, careful piece of work typical of the researches of the best animal psychologists, but bearing on human delinquency only by the most violent logical acrobatics.

The long study by Darrow, assisted by Miss Heath, is the most outstanding one of the volume. It is an attempt to correlate syndromes of physiological reactivity measures with constellations of items from the Thurstone Personality Schedule, and to a lesser extent with the Gilliland-Morgan Introversion-Extroversion Scale. Darrow himself appears to regard his attempt as a failure, due perhaps to a preoccupation with coefficients high enough to be used in direct prediction; but this seems too ungenerous an estimate if one is interested in less immediately practical matters. Twenty-one measures of the sort indicated in the subtitle were employed, and by an empirical method of considerable ingenuity the natural groupings among these and among the Thurstone items were approximated. The final coefficients indicate rather strongly the presence of a definite neurotic grouping in the material of the scale, accompanying an equally definite neurotic syndrome on the physiological side; there is also a "somasthenic" (or perhaps better hypochondriacal) correlation of the same order, but this does not appear to be closely related to the preceding. The small coefficients (.30 to .38), in the light of other coefficients for the same kind of functions, appear to indicate that Darrow has succeeded in wresting from the data approximately their highest correspondences. The independence of the neurotic constellation from both intelligence and extroversion is also to be noted.

The study by Landis does not impress one with its strength. It is divided into two parts, one dealing with a group of delinquent boys at an institution near Chicago and the other with one of delinquent girls near Middletown (Conn.). He applied to these groups a series of the usual laboratory and paper-and-pencil tests and computed the intercorrelations thereof, which turn out rather uniformly low. We believe we follow Landis's intent fairly closely when we interpret his conclusions as uniformly pessimistic. It is hard to say why we should have expected just that—but we should have. The important distinction appears to be that between studying delinquency and studying psychology; in the former the delinquency is central—we observe it persistently and follow the facts about it wherever they may lead; in the latter, techniques and preconceptions are the center of attention—we wish to know, not anything about certain kinds of behavior in a subject, but certain kinds of behavior in a test when applied to a subject (who is known, as a bit of supplementary data, to have manifested special kinds of behavior). The tests, it is found, show nothing important about the subject; of course—they were so applied that they couldn't.

By way of parting comment, it may be worth while to inquire whether these are the sort of people—and whether the sort of people exists—to con-

duct investigations that purport to bear on juvenile delinquency. It is as though in the course of an emergency involving persistent depletion of the food supply a group of public-spirited citizens were to contribute funds for research on the causes thereof; no doubt eminent botanists and zoologists would foregather with much gratitude, labor diligently for a number of years—and turn out several excellent treatises on general botany and zoology.

RAYMOND R. WILLOUGHBY

Clark University
Worcester, Massachusetts

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ANNOYANCE AND BEHAVIOR*

From the Psychological Laboratory of the University of Wisconsin

HULSEY CASON AND ALFRED CHALK

One of the chief categories of social psychology is the psychology of interpersonal behavior which involves complex patterns of stimuli and responses, and which includes inner affective processes as well as manual and verbal activities. Although complete agreement has not been reached on the relative importance of implicit and explicit behavior, some progress has been seriously hampered by failing to consider the inner affective activities which generally do not "express" themselves in movements that can be readily observed by another person. Social psychology is concerned not only with manual and verbal activities but also with affective activities, and it is concerned with them not only as stimuli but also as responses. An insufficient number of studies has been carried out in which a comparison was made in a group of subjects between their ratings of each other and their ratings of themselves on certain personality traits; and there is an even greater need for experimental data on the relation between a person's own behavior and personal characteristics and his responses to the same behavior and characteristics of other people.

In the present paper we shall describe a quantitative study of the relation between the extent to which a person is annoyed by the behavior and characteristics of other people and the extent to which he does the same things and has the same characteristics himself. Annoyances are good material for studies of this kind because they possess a very high degree of concreteness and specificity. Our problem may be illustrated by the following examples. If a person is annoyed by being slapped on the back, does he slap others on the back; and if he slaps others on the back, is he annoyed by being slapped on the back? If a person is annoyed by inquisitiveness in others, how inquisitive is he; and if he is inquisitive, is he annoyed by inquisitive people? We have studied contingencies of this kind for 65 annoyances, and in each case have obtained the regression of the subject's being annoyed by something in other people on doing

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the same thing himself, and the regression of the subject's doing something himself on his being annoyed by the same thing in other people.

In a previous study of annoyances (1) measures were obtained of the relative strength of 507 things and situations; and the annoyances were graded by a scale on which 30 was "extremely annoying," 20 "moderately annoying," 10 "slightly annoying," and 0 "not annoying." The average scores which were obtained for the 507 annoyances range from a minimum of 0 to a maximum score of 30 (1, Table 4). These scores show the strength of the annoyances when they occur, but not their frequency of occurrence.

Procedure. In the present study, 65 annoyances were selected which had an average score above 10. We could not use annoyance No. 316, for example, on "Flies," because it cannot be "reversed." The 65 annoyances which seemed most suitable for our present purpose are shown in the left-hand portion of Table 2. The S first indicated the extent to which he was annoyed by each of these items, and he was then asked to state how frequently he did each thing or how frequently he had the characteristic in question. The two steps in the procedure were as follows.

1. The S was first given the following printed instructions for grading the annoyances, and the 65 annoyances listed in Table 2 followed these instructions.

On the next few pages are a number of statements which describe things and situations which are annoying to many people. These annoyances have been collected from a large and representative group of people. The statements of these common annoyances have been carefully worded. Each statement stands by itself, and is independent of the others. Each statement should be taken literally. Examine some of these statements now (for a few minutes), and note their general nature.

When ready to proceed, read each of the statements carefully, one at a time. If you have been in the situation described or have been exposed to the thing mentioned, during the past 3 or 4 years, estimate carefully the degree of annoyance, if any, which you experienced at that time. Use the following scale in grading each of these things or situations:

- 3—Extremely annoying
- 2—Moderately annoying
- 1—Slightly annoying
- 0—Not annoying
- X—Have not been in the situation

If, for example, the situation or thing described was moderately annoying, write the number 2 in the parenthesis just to the left of the statement. If the situation was not annoying, put a 0 in the parenthesis. If you have not been in the situation during the past 3 or 4 years, mark the statement with an X; and so on. Mark each of the statements with either 3, 2, 1, 0, or X. Do not skip any of the statements.

This is not a mental test of any kind. Do not hurry. Take plenty of time. Read each statement slowly and very carefully. Recall deliberately the annoyance, if any, which you have experienced in the situation described. Grade each statement as accurately and as impartially as possible. Disregard the known, assumed, or supposedly proper degree of annoyance of other persons. Grade each statement solely on the basis of your own past experience. Be as frank and as accurate as possible. Your answers will be confidential.

The S wrote the grades in parentheses just to the left of the annoyances.

2. S was then unexpectedly asked to carry out the following instructions:

Will you now indicate how frequently you yourself do each of the things mentioned, or how frequently the situation described is characteristic of you. Indicate the number of times you have done each of the things mentioned, or the number of times the situation has been characteristic of you during the past three or four years. Use the following scale:

- A—Frequently
- B—Occasionally
- C—Not at all

For each statement, write the letter A, B, or C just to the left of the parenthesis. The procedure may be illustrated by annoyance No. 1, "A person losing his (or her) temper." If you have frequently lost your temper during the past three or four years, write the letter A just to the left of the parenthesis. If you have occasionally lost your temper, write the letter B just to the left of the parenthesis. If you have not lost your temper at all, write the letter C just to the left of the parenthesis.

Please do not hurry. Read each annoyance slowly and carefully, and grade each one deliberately. Be as accurate as possible. Do not omit any of the items.

The experiment was carried out under carefully controlled conditions, and the results seem fairly reliable.

SUBJECTS

A total of 100 S's was used, and their age and sex distribution was as follows:

Age	Male	Female	Both sexes
50-59	1	3	4
40-49	3	1	4
30-39	11	8	19
20-29	27	29	56
10-19	8	9	17
Total	50	50	100

Forty of the S's were obtained in the writer's class in genetic psychology in the fall of 1930. Seventy were students at the University of Wisconsin, and the remainder represented a variety of occupations.

RESULTS

Each S gave grades of 3, 2, 1, or 0 for his own degree of annoyance when each act or characteristic was present in other people, and each S also gave grades of A, B, or C for the *frequency* with which he did each thing or had each characteristic. In order to treat the results on *frequency* quantitatively, the grades of A, B, and C were changed to 2, 1, and 0, respectively. Each S gave each annoyance a grade of 3, 2, 1, or 0 for *strength*, and a grade of 2, 1, or 0 for *frequency*. In the results obtained the larger the score the greater the *strength* or *frequency*; and for convenience all of the grades have been multiplied by 10.

The nature of the results that were calculated for all annoyances may be illustrated in Table 1 by the complete data for three annoyances. In the case of annoyance No. 20, 14 S's out of 100 said they were extremely annoyed by being slapped on the back, and they said they never slapped anyone else on the back; 6 were not at all annoyed by being slapped on the back, and they frequently slapped others on the back; while 5 had not been slapped on the back and had not slapped anyone else on the back. The *mean frequency* score for *strength* 30 was obtained by multiplying 10 by 1, and 0 by 14, and dividing the sum by 15, the total number of cases. The "X" grades were not used in the calculations, and the mean number of "X" grades per annoyance for the 65 annoyances was 2.7. If there were fewer than 5 cases on which to base the mean, this figure was omitted; and a question mark was placed after all means based on only 5, 6, 7, 8, or 9 cases.

TABLE 1
ILLUSTRATIVE DATA FOR THREE ANNOYANCES

Annoyance	Strength					X	Mean S for frequencies of 20, 10, and 0
	30	20	10	0			
20. A person slapping me on the back in a familiar manner.	Fre- quen- cy	{ 20 1 3 13 6 1 1?					
		10	1	3	13	13	7
		0	14	17	18	8	5
	Mean F for strengths of 30, 20, 10, and 0	1	1	5	9		16
12. To hear a person drinking noisily.	Fre- quen- cy	{ 20 1 8 6 1 —					
		10	7	8	6	1	20
		0	14	25	24	13	15
	Mean F for strengths of 30, 20, 10, and 0	4	2	2	0		
36. To hear a person talking during a moving picture performance.	Fre- quen- cy	{ 20 3 4 1 1 20?					
		10	15	18	20	7	17
		0	16	9	3	3	22
	Mean F for strengths of 30, 20, 10, and 0	6	8	9	8		

The principal results are shown in Table 2, which gives for each annoyance the 4 *mean frequencies* for *strengths* of 0, 10, 20, and 30, and the 3 *mean strengths* for *frequencies* of 0, 10, and 20. In annoyance No. 1, those S's who were extremely annoyed (score of 30) by a person losing his temper gave a *mean frequency* score of 9. On the scale used in grading the *frequency* of the annoyances, 0 was "not at all," 10 was "occasionally," and 20 was "frequently." Those S's who frequently lost their tempers (score of 20) gave a *mean strength* score of 16. On the scale used in grading the *strength* of the annoyances, 0 was "not annoying," 10 was "slightly annoying," 20 "moderately annoying," and 30 "extremely annoying."

We have also calculated the *average frequency* and the *average*

TABLE 2
RELATION BETWEEN STRENGTHS AND FREQUENCIES OF ANNOYANCES

Annoyance	Mean F for strengths of				Mean S for frequencies of				Group
	0	10	20	30	0	10	20	30	
<i>Anger</i>									
1. A person losing his (or her) temper.	11?	10	11	9	19	19	16		II
<i>Automobiles</i>									
2. A person in the same automobile with me behaving in a very nervous manner.	3	5	5	4	19	2	2?		III
<i>Colds</i>									
3. To see a person's nose running.	—	2	1	2	24	24	—		II
4. To hear a person blow his (or her) nose very loudly.	7	7	4	4	14	12	8?		I
5. A person not covering his (or her) mouth when he (or she) coughs or sneezes.	9?	5	3	4	21	19	—		I
6. To see a person picking his (or her) nose.	—	11	6	4	28	20	17?		I
7. To hear a person snuffing as if he (or she) has a cold.	13?	6	7	5	20	17	10?		I
<i>Commands</i>									
8. A person telling me to do something when I am just about to do it.	11	8	9	8	18	17	13?		I
9. A person ordering me to do something.	11	11	9	8	21	17	13		I
<i>Criticism</i>									
10. A person continually criticizing something.	10?	9	8	7	21	21	15?		I
11. A person being sarcastic.	11	9	11	7	15	13	9		IV
<i>Eating, Drinking</i>									
12. To hear a person drinking noisily.	0	2	2	4	15	20	—		—
13. To hear a person eating soup noisily.	0?	2	3	2	19	21	—		II
14. To hear a person eating noisily.	—	3	3	3	20	22	—		II
15. To see a person eating very rapidly.	11	12	8	4?	11	12	6		I

TABLE 2 (continued)
RELATION BETWEEN STRENGTHS AND FREQUENCIES OF ANNOYANCES

Annoyance	Mean F for strengths of				Mean S for frequencies of				Group
	0	10	20	30	0	10	20		
<i>Egotism</i>									
16. A person crowding in front of me instead of waiting his (or her) turn when I am waiting in line.	—	6	4	2	24	19	—	I	
17. A person bragging about his (or her) ancestors.	1	4	3	2	14	13	—	II	
<i>Familiarity</i>									
18. To know that a person is staring at me.	10	11	11	6	13	11	11	II	
19. A person coming into my room without knocking.	11	6	3	1	18	8	3	I	
20. A person slapping me on the back in a familiar manner.	9	5	1	1	16	7	1?	I	
21. A person putting his (or her) hands on me unnecessarily.	8	4	6	4	17	17	13?	II	
<i>Greetings</i>									
22. A person giving me a very weak hand-shake.	7	4	1	2	18	12	—	I	
23. In a public place, a person calling loudly to me from a distance.	8	4	3	2	18	12	0?	I	
<i>Grooming of Body</i>									
24. To see a person removing food from his (or her) teeth and gums by means of his (or her) tongue or lips.	9	8	7	2	21	14	10?	I	
<i>Insincerity, Lying</i>									
25. To hear one person flattering another.	8	9	6	4?	13	10	6?	I	
<i>Inquisitiveness</i>									
26. A person being inquisitive about my personal affairs.	10?	9	8	3	23	17	12?	I	

TABLE 2 (continued)
RELATION BETWEEN STRENGTHS AND FREQUENCIES OF ANNOYANCES

Annoyance	Mean F for strengths of				Mean S for frequencies of				Group
	0	10	20	30	0	10	20	30	
<i>Jokes</i>									
27. A person laughing a great deal at his (or her) own jokes.	9	8	6	4	15	11	8		I
<i>Language</i>									
28. A person using a great deal of slang.	11	8	9	3	16	11	5		I
<i>Locomotion</i>									
29. To hear a person scuffing his (or her) feet as he (or she) walks.	7	4	4	2	13	10	2?		I
<i>Music</i>									
30. To hear a person talking during a musical number.	—	10	5	2	28	18	—		I
31. To hear a person in the audience humming the tune during a musical number.	9	4	6	3	24	18	—		IV
<i>Nervousness</i>									
32. A person biting his (or her) finger nails.	4	5	5	2	18	13	19?		II
33. To hear a person cracking his (or her) joints.	6	2	2	0	15	9	—		I
34. To see a person picking at a sore.	2?	6	7	3	23	21	—		IV
35. To hear a person tapping on a hard surface in a nervous manner.	7	7	6	4	16	12	11		I
<i>Public Entertainments</i>									
36. To hear a person talking during a moving picture performance.	8	9	8	6	22	17	20?		II
<i>Pushed (Being)</i>									
37. To be pushed when in a crowd.	7	5	5	4	16	13	—		I

RELATION BETWEEN STRENGTHS AND FREQUENCIES OF ANNOYANCES

Annoyance	Mean F for strengths of				Mean S for frequencies of				Group
	0	10	20	30	0	10	20	30	
<i>Reading, Studying, Writing</i>									
38. A person looking over my shoulder and reading the book or newspaper I am reading.	10	8	7	4	19	13	5?		I
39. A person looking over my shoulder at what I am writing.	—	4	3	2	25	21	—		I
40. To hear people talking to each other when I am trying to read or study.	11	10	9	8	21	18	12		I
41. A person speaking to me when I am reading or studying.	10	9	10	7	20	19	15		III
42. A person talking to me when I am writing.	13	8	8	6	19	16	11		I
<i>School</i>									
43. To hear a person who is sitting near me in the audience talking during a lecture.	—	7	5	5	25	21	—		III
<i>Sex</i>									
44. To be spoken to familiarity in a public place by a person of the opposite sex whom I do not know.	5	1	2	1	15	9	—		I
<i>Snubbing</i>									
45. An acquaintance snubbing me or not paying any attention to me.	6	7	6	2	20	13	16?		
<i>Speech, Conversation</i>									
46. To hear a grown person talking baby talk.	4?	4	4	1	23	19	—		I
47. A person monopolizing the conversation.	2	6	5	4	17	23	—		
48. To hear a person using such expressions as "If you know what I mean," "Do you get me?," etc.	6	6	4	2?	13	9	—		I
49. A person in conversation with me not paying attention to what I am saying.	—	9	11	5	27	20	20?		IV
50. To listen to a person who is talking in a halting manner and continually saying "er-er," "and-er," etc.	3?	6	4	2	19	15	—		I
51. A person interrupting me when I am talking.	11?	11	8	7	20	16	12		I

TABLE 2 (continued)
RELATION BETWEEN STRENGTHS AND FREQUENCIES OF ANNOYANCES

Annoyance	Mean F for strengths of				Mean S for frequencies of				Group
	0	10	20	30	0	10	20		
<i>Table Manners</i>									
52. A person who is eating at the table with me taking the best piece of food when the dish is passed.	5	7	5	3?	10	9	—	II	
53. A person playing with the table utensils during a meal.	8	7	5	4?	12	9	6	I	
54. To see a person at the table lower his (or her) head very close to the plate while he (or she) eats.	2	2	2	1	18	17	—	II	
55. A person who is eating at the table criticizing the food.	10	7	7	5	21	16	13?	I	
<i>Waiting</i>									
56. To have to wait for a person who is late for an engagement.	10?	11	9	6	24	21	17	I	
<i>Non-Human Things and Activities</i>									
57. To hear the continual blowing of an automobile horn.	4	5	2	4	21	16	—	III	
58. To see lack of neatness in dress.	14?	8	8	5	21	16	6?	I	
59. To see a person using a dirty handkerchief.	—	7	6	2	24	18	—	I	
60. To see a person wearing shoes with run-down heels.	7	9	5	1	17	11	—	IV	
61. To see a person wearing shoes that need a shine.	13	9	8	—	11	10	3	I	
<i>Physical Characteristics of People</i>									
62. The oily appearance of the skin of a person's face.	7	7	5	1	16	13	5?	I	
63. To see the dirty hands of a person.	9	8	7	2	13	14	—	—	
64. To see dirty finger-nails.	7?	11	6	5	23	19	—	I	
65. To see very short finger-nails that have been bitten.	3	3	2	2	18	9	20?	—	
Average	7.8	6.7	5.7	3.7	18.7	14.9	10.3		

strength scores for each annoyance by averaging the 3 or 4 *mean F* scores, and the 2 or 3 *mean S* scores. These *av. F* and *av. S* scores have not been included in the table, but the correlation between them was found to be practically 0.00. There is apparently a zero correlation between the strength of these annoyances when they occur and their frequency of occurrence.

The *average frequency and average strength* scores for all the annoyances combined are shown in the last row of Table 2. The *av. F* scores for *strengths* of 0, 10, 20, and 30 are 7.8, 6.7, 5.7, and 3.7, respectively, and the *av. S* scores for *frequencies* of 0, 10, and 20 are 18.7, 14.9, and 10.3, respectively. In the majority of cases, when a person is not annoyed by an act in other people he tends to do the same thing more frequently himself, and when he is quite annoyed by an act in other people he tends to do the same thing less frequently himself.

Although the principal tendency is in the direction of the average results referred to just above, the same result was not obtained for all of the annoyances; and we have classified 60 of the annoyances into four groups on the basis of the *mean frequency* scores for different *strengths* and the *mean strength* scores for different *frequencies*. The four groups are as follows.

I. As the *strength* increases the *frequency* decreases, and as the *frequency* increases the *strength* decreases.

II. As the *strength* increases the *frequency* remains constant, and as the *frequency* increases the *strength* remains constant.

III. As the *strength* increases the *frequency* remains constant, and as the *frequency* increases the *strength* decreases.

IV. As the *strength* increases the *frequency* changes irregularly, and as the *frequency* increases the *strength* decreases.

The group to which each of 60 annoyances seems to belong is indicated on the right in Table 2. There are 40 annoyances in Group I, 11 in Group II, 4 in Group III, and 5 in Group V. The large number of annoyances in Group I shows that the most common tendency is for an individual not to do those things which annoy him when done by other people. The annoyances which are not in Group I, however, show that individuals frequently do certain things even though they are annoyed by the same acts in other people. There are also numerous individual differences between different subjects in their *frequency* and *strength* grades for individual annoyances. The results as a whole show that there is some positive

correlation but not a high correspondence between a person's behavior and his responses to the same behavior in other people.

REFERENCE

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*University of Wisconsin
Madison, Wisconsin*

L'ENNUI ET LE COMPORTEMENT

(Résumé)

On a fait une étude quantitative de la relation entre l'ennui causé à une personne par les actes d'autres personnes et la fréquence des mêmes actes faits par elle-même. Cinquante hommes et 50 femmes ont évalué la force des ennuis causés par d'autres et la fréquence des mêmes actes faits par eux-mêmes, pour 65 ennuis. Sur l'échelle employée pour évaluer la Force des ennuis, 0 a été "Non ennuyant," 10 a été "Un peu ennuyant," 20 "Assez ennuyant," et 30 "Extrêmement ennuyant." Sur l'échelle employée pour évaluer la Fréquence des ennuis, 0 a été "Pas du tout," 10 a été "De temps en temps," et 20 a été "Fréquemment." Les résultats de la *Fréquence Moyenne* pour les Forces de 0, de 10, de 20, et de 30 ont été de 7,8, de 6,7, de 5,7, et de 3,7 respectivement; et les résultats de la *Force Moyenne* pour les Fréquences de 0, de 10, et de 20 ont été de 18,7, de 14,9, et de 10,3 respectivement. Quand une personne n'est pas ennuyée par un acte fait par d'autres, elle tend à faire la même chose plus fréquemment elle-même, et quand elle est très ennuyée par un acte fait par d'autres, elle tend à faire la même chose moins fréquemment elle-même. La corrélation entre le comportement d'une personne et ses réponses au même comportement chez d'autres personnes cependant est seulement modérée. Il n'y a nulle corrélation entre la force des ennuis employés quand ils se présentent et la fréquence avec laquelle ils se présentent.

CASON ET CHALK

BELÄSTIGUNG UND BETRAGEN

(Referat)

Man untersuchte quantitativ die Beziehung zwischen der Stärke der empfundenen Belästigung einer Person durch die Tätigkeiten anderer, und der Häufigkeit, mit der die Person selber diese Tätigkeiten ausführte. 50 Männer und 50 Frauen ordneten rangmässig 65 belästigende Tätigkeiten [annoyances] nach der Stärke der durch sie verursachte Belästigung und nach der Häufigkeit mit der die Versuchsperson selber diese Tätigkeiten ausführte. In der Anordnung der Stärke nach, bedeutete die Zahl 0 dass die Tätigkeit nicht als belästigend empfunden wurde, 10 dass sie etwas belästigte, 20 dass sie als mässig belästigend, und 30 dass sie als höchst

belästigend empfunden wurde. In der Anordnung in Bezug auf die Häufigkeit der belästigenden Tätigkeit bedeutete 0 dass die Vp. die bezügliche Tätigkeit "nie," 10 dass sie diese "manchmal," und 20 dass sie diese "oft" ausführe. Die durchschnittlichen Zahlen in Bezug auf Stärke der Belästigung waren für 0, 10, 20, und 30 respektiv 7.8, 6.7, 5.7, und 3.7. Die durchschnittlichen Zahlen in Bezug auf Häufigkeit waren für 0, 10, und 20, respektiv 18.7, 14.9, und 10.3. Wenn Jemand durch eine gewisse Tätigkeit von Seite anderer Menschen nicht belästigt wird, neigt er dazu, die selbe selber Öfter auszuführen, und wenn er eine solche Tätigkeit von Seite anderer Menschen als stark belästigend empfindet, so führt er im Allgemeinen diese Tätigkeit selber seltener aus. Die Korrelation der Tätigkeit einer Person mit den Reaktionen dieser Person auf die selbe Tätigkeit von Seite anderer Menschen ist aber nur eine mässige. Die Korrelation der Stärke der verwendeten Belästigungen, wenn sie überhaupt stattfinden, mit der Häufigkeit ihres Vorkommens ist Nul.

CASON UND CHALK

HUMOR AND ITS RELATION TO OTHER PERSONALITY TRAITS*

From the Psychological Laboratory of Wesleyan University

CARNEY LANDIS AND JOHN W. H. ROSS

Literature and philosophy abound in theoretical and descriptive accounts of humor, the ludicrous and the comic. Much of this material has been brought together and collated by Eastman (3) in his *Sense of Humor*. This excellent work contains many suggestions for experimental work and forms the basis of the system of categorical classification used in the present study.

In view of the wide interest in this topic, it is rather surprising that so little actual experimental work has been presented on this subject. Diserens (1, 2) has summarized most of the work which has appeared. Recently, Kambouropoulou (5) has published a study having much the same scope although differing in method from the present study. The results of Dr. Kambouropoulou's study will be compared to those which we obtained, during the course of the present article.

PURPOSE

This study proposed to investigate the individual differences in the rating and classifying of jokes when these jokes were presented in a standardized fashion. Special attention and emphasis have been given, in analyzing the results, to demonstrating such sex differences as might be found. Relationships which might exist between this form of appreciation of humor and intelligence or introversion-extroversion have been investigated. The relationship between the type of joke which an individual considered funny or not funny and other measures of personality has been investigated. An attempt has been made to sort out of the multiplicity of variables studied here those which tend to group together and those which act more or less independently, and to relate these findings to the total personality of the individual.

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METHOD

1. *Tests Employed*

a. *The Humor (H) Test.* After a review of the theoretical literature on the subject of humor, seven categories of humor were set up and defined as follows:

1) (*Qu*) *Humor of quantity.* Humor which primarily results from obvious exaggeration. (Over- or under-statement of facts, thoughts, feelings, sensations, etc.)

2) (*In*) *Humor of incongruity.* Humor which primarily results from a situation associating two generally accepted incompatibles.

3) (*Un*) *Humor of unexpected.* Humor which primarily results from the occurrence of some surprising fact, thought, feeling, sensation, etc. (Unforeseen success or failure.)

4) (*Tr*) *Humor of truth.* Humor which primarily results from projecting oneself into the situation in question with a consequent exposure of one's unrevealed thoughts, sensations, etc.

5) (*Su*) *Humor of superiority.* Humor which primarily results from the inability of others to handle adequately situations which to us seem simple.

6) (*Re*) *Humor of repression.* Humor which primarily results from the release of tension aroused by one's thoughts, feelings, sensations, etc., of fear, sex, etc.

7) (*Ri*) *Humor of the ridiculous.* Humor which primarily results from the obviously nonsensical use of logic, verse, etc. (Special types of plays on words.)

Magazines, joke books, humorous publications, etc., were then read, and 30 jokes illustrative of each category were selected by three readers. These readers uniformly agreed that each joke was clearly an instance of only one category. These jokes were then ranked for goodness by writers and by the editors of a college humorous publication. From each group of 30 jokes, 12 jokes were selected, 3 of which had been rated very good, 3 good, 3 poor, and 3 very poor. These 84 jokes were then arranged in a "spiral" fashion from very poor to very good, systematically varying the categories. Nine jokes from Kambouroupoulou's list, which the judges agreed upon as clearly meeting the categorical definitions, were added. Then seven additional jokes were taken at random from those assembled by the readers so as to make a list of 100 jokes. Of these latter 16, 10

were placed at the head of the list and 6 at the end. This list of 100 jokes was then printed in the following sample form.

- | | | |
|------|--|-------------|
| 1. | Once a city man out of work "hired out" to a farmer. At four o'clock in the morning the newly employed man was called out to breakfast. A few minutes later the farmer was astonished to see the man walking off down the road. "Say! come back and eat breakfast before you go to work!" he yelled after him. "I ain't goin' to work," the man called back. "I'm goin' to find a place where I can stay all night." | A B C D E |
| | | Qu In Un Tr |
| | | Su Re Ri |
| 2. | "I hope you are not afraid of microbes," apologized the paying teller as he cashed the school teacher's check with soiled currency. "Don't worry," returned the young lady, "no microbes could live on my salary." | A B C D E |
| | | Qu In Un Tr |
| | | Su Re Ri |
| 80. | The dinner party was over. All had eaten heartily and expensively. In one corner a lone Scotchman strove to make himself inconspicuous when the check arrived. Suddenly, to everyone's complete surprise, he spoke up, "Just leave that check to me. I'll take care of it." They obeyed. Item in next morning's newspaper:
SCOTCHMAN MURDERS VENTRILOQUIST! | A B C D E |
| | | Qu In Un Tr |
| | | Su Re Ri |
| 99. | For a whole hour the Captain had been lecturing his men on the "Duties of a Soldier" and he thought that now the time had come for him to test the results of his discourse. "Private Murphy," he asked, "why should a soldier be ready to die for his country?" A smile flitted across the Irishman's face "Shure Captain," he said, "you're quite right. Why should he?" | A B C D E |
| | | Qu In Un Tr |
| | | Su Re Ri |
| 100. | "You should be more careful to pull the shades down at night. Last night I saw you kissing your wife." "Ha, ha, ha! The joke is on you. I wasn't home last night." | A B C D E |
| | | Qu In Un Tr |
| | | Su Re Ri |

The definitions of the categories of humor were printed on a separate page of the same size paper. In giving this test, groups of individuals were handed both the list of jokes and the definitions. They were directed to judge each joke separately for goodness and to record that judgment by encircling A for excellent; B, good; C, average; D, poor; and E, no joke at all. After making each judgment, they were to classify each joke on the basis of the definitions and to encircle Qu, In, Un, etc., as the record of that judgment.

In scoring this test A was given 11 points; B, 8 points; C, 6 points;

D, 4 points; and E, 1 point. The total number of points thus awarded are regarded as the "H" score for the purposes of this test.

b. The "T" Test. This test is Heiddreder's revision of Freyd's Introversion-Extroversion scale and is composed of 53 "yes" or "no" questions—the number of "yes" answers being proportional to the degree of introversion. All subjects took the "T" test immediately before receiving the "H" test.

c. The measurement of intelligence. Intelligence scores were obtained for each of the three groups used in this study. Scores for the first college group (Wesleyan) were obtained in terms of percentile rank based on a standard college ability test taken at the beginning of the freshman year. The ratings for the second college group (Smith) were also obtained in percentile rank on the basis of the Smith College Intelligence Test. With the Long Lane Farm group, actual IQ's were procured by means of the Stanford-Binet intelligence test.

2. The Three Experimental Groups

a. The Wesleyan University Group. This group was composed of 124 male undergraduates who were taking courses in psychology or logic. The tests were taken together in class sections.

b. The Smith College Group. This group included 154 female undergraduates taking the elementary course in psychology. All of the tests were administered in the Psychological Laboratory at Smith.

c. The Long Lane Farm Group. This group was made up of 112 incorrigible or delinquent girls under 21 years of age who had been legally committed to the Connecticut state institution.

RESULTS

From Table 1 it is apparent that no significant relationship exists between these three test performances, either when that relationship is determined by the Pearson product-moment formula or by the Pearson non-linear eta formula. This may be expressed in another way by saying that each of these three scales samples a distinct and independent function.

Study of Table 2 shows that there is but very little overlapping between the "H" test performance and other personality or intellectual traits. Evidently the assigning of high or low values to the jokes is not dependent on any one or combination of personality traits here employed. These figures further substantiate the findings sum-

TABLE 1
RELATION BETWEEN HUMOR, INTELLIGENCE, AND INTROVERSION

Correlations between	Wesleyan Group	Smith Group	Long Lane Group
Intelligence and introversion	$r = -.07 \pm .06$ $\eta = .14 \pm .06$ ($n = 124$)	$r = +.04 \pm .05$ $\eta = .15 \pm .05$ ($n = 151$)	$r = -.19 \pm .06$ $\eta = .21 \pm .08$ ($n = 112$)
Intelligence and humor	$r = +.04 \pm .06$ $\eta = .06 \pm .06$ ($n = 124$)	$r = +.12 \pm .05$ $\eta = .24 \pm .05$ ($n = 154$)	$r = -.11 \pm .06$ $\eta = .18 \pm .08$ ($n = 112$)
Introversion and humor	$r = +.24 \pm .05$ $\eta = .12 \pm .06$ ($n = 127$)	$r = +.05 \pm .05$ $\eta = .14 \pm .05$ ($n = 156$)	$r = -.11 \pm .06$ $\eta = .13 \pm .08$ ($n = 112$)

TABLE 2
RELATION BETWEEN HUMOR AND OTHER VARIABLES TESTED WITH LONG LANE FARM GROUP

Long Lane Farm Group $n = 112$ η correlation	IQ	X-variable			Hull's suggestion test	Maze learning
		Thurstone Personality Scale	Introversion Extroversion	Revised X-O Test		
Humor predicted from X-variable	.18	.20	.15	.20	.19	.19
X-variable predicted from humor	.18	.32	.10	.25	.22	.16

marized in Table 1 above, viz., that the "H" scale deals with an independent personality trait.

In the analysis of Table 3 several facts must be kept in mind. In the first place, the measures expressed as "Av. total" and as "%" represent different things psychologically. "Av. total" refers to the average value assigned to the jokes of a specific category without regard to the number of jokes so classified, while "%" means that the individuals composing the group tend to classify jokes into one or another particular category. Secondly, the figures obtained by the use of the "eta" formula give two predictions, the X-variable predicted from Y, and Y from X. (In Table 3, Y="H" test while X=In-

TABLE 3

RELATIONSHIP BETWEEN INTELLIGENCE, INTROVERSION, AND THE CLASSIFICATIONS ASSIGNED TO THE JOKES

(Av. total represents the total value for goodness assigned to jokes within a specified category. % represents the numerical percentage of jokes assigned to a specified category without reference to the judgment of value.)

Correlation		Qu	In	Un	Tr	Su	Re	Ri
		Av. Total	Av. Total	Av. Total	Av. Total	Av. Total	Av. Total	Av. Total
		%	%	%	%	%	%	%
Wesleyan Intelligence	$N=64$							
Rank difference		— .00	.03 — .02	— .07	.28	.03 — .09	— .21	— .04 — .03
Wesleyan Introversion	$N=125$							
Eta (corrected)		.17	.24	.13	.17	.23	.09	.13
Eta (corrected)		.06	.04	.09	.10	.20	.04	.22
Wesleyan Introversion	$N=64$							
Rank difference		.09 — .14	— .09 — .11	.06	.02	.11 — .01	.03	.01
Wesleyan Introversion	$N=125$							
Eta (corrected)		.15	.07	.14	.21	.16	.22	.16
Eta (corrected)		.15	.27	.24	.25	.20	.25	.11
Smith Intelligence	$N=52$							
Rank difference		.32 — .18	.42	.13	.26	.04	.09	.11
Smith Intelligence	$N=155$							
Eta (corrected)		.22	.40	.10	.16	.09	.09	.10
Eta (corrected)		.01	.17	.19	.15	.18	.10	.19
Smith Introversion	$N=52$							
Rank difference		— .07	.08	.25	.18	— .05 — .26	.04	— .02
Smith Introversion	$N=155$							
Eta (corrected)		.03	.17	.24	.12	.22	.30	.18
Eta (corrected)		.09	.12	.19	.13	.19	.14	.10

telligence or Introversion.) Bearing these points in mind the figures seem to indicate the following:

1. Individuals of higher intelligence tend to place a higher value on jokes which they classify as incongruous or truth. On the other hand, one who tended to assign high values to these jokes favored higher values for jokes which he placed in the superiority category.

2. Introverts tended to classify jokes into the repression category and to value these jokes highly.

3. Extroverts tended to classify jokes into the truth category and to value these jokes highly.

4. Extroverted individuals who tended to assign high values to this list of jokes used the category of incongruity, while introverted individuals who assigned high values tended to use the unexpected category but did not assign particularly high values in this category.

5. Men of superior intelligence tended to use the truth category, while extroverted women tended to use the quantity category.

6. Each of these points must be regarded as indicative only. The correlations are low, and, as we have said, the defining of the categories is comparatively inexact. In spite of this, we feel that the indications are of some psychological importance and constitute a lead in the study of personality.

In interpreting Table 4, it must be remembered that the values given in scoring these jokes were arbitrarily assigned as 11, 8, 6, 4, 1, for A, B, C, D, and E respectively. It will be noted that both Smith and Wesleyan gave average marks of less than C, while Long Lane Farm gave an average rating fairly well above C. The difference between the 5.77 of Wesleyan and 5.59 of Smith is 2.4 times the *P.E.diff.* and hence has 94 chances out of 100 of being a significant sex difference. The difference between Long Lane and either Smith or Wesleyan has 100 chances out of 100 of being significant. The difference between Smith and Wesleyan averages may be of significance since the groups are of a comparable social status. The difference in the case of the Long Lane group is significant but obvious when one considers the social origins involved.

The joke receiving the highest rating at Wesleyan was No. 100 (see p. 158 *supra*), while No. 7 took second place at Wesleyan and first place at Smith, No. 9 being second at Smith.

7. The attorney for an electric light company was making a popular address. "Think of the good this company has done!" he cried. "If I were permitted a pun, I would say in the words of the immortal poet—"Honor the Light Brigade."

Voice of the consumer from the audience: "O, what a charge they made."

9. "Now then, men," cried the gallant captain, "Fight like heroes till your powder is done, then run for your lives. I'm a little lame so I'll start now."

Nos. 30, 12, and 14 took the three last places at both Wesleyan and Smith.

30. Our idea of a weakling is a man who caves in when a fly lands on his shoulders.

12. "Did you feel the earthquake last night?"
"No, I was shimmying."

TABLE 4

COMPARISON OF THE AVERAGE VALUES OF GOODNESS OF JOKES ASSIGNED BY VARIOUS GROUPS, TOGETHER WITH VALUES ASSIGNED TO EXTREME CASES

Group	Av. value all jokes	S.D. of Av.	Av. value of 5 best jokes	Av. value of 5 poorest jokes
Wesleyan	5.77	.669	6.98	4.25
Smith	5.59	.952	7.13	3.91
Long Lane Farm	6.63	.995	7.74	5.58

TABLE 5

COMPARISON OF 5 BEST AND 5 POOREST JOKES AS RATED BY EACH GROUP

Group	Nos. of 5 best jokes	Modal class	Av. value assigned by group	Nos. of 5 worst jokes	Modal class	Av. value assigned by group
Wesleyan	100	Un	7.24	30	Qu	3.95
	7	Ri	7.05	12	Qu	4.13
	29	Ri	6.98	14	Ri	4.29
	80	Un	6.85	20	Un	4.33
	85	Ri	6.77	93	Un	4.56
Smith	7	Ri	7.86	30	Qu	3.47
	9	Un	6.99	12	Qu	3.78
	51	Un	6.98	24	Qu	3.90
	82	Un	6.95	20	Su	4.12
	78	Ri	6.87	63	Su	4.30
Long Lane	42	Su	7.94	35	Ri	5.29
	25	Tr	7.80	74	Ri	5.38
	100	Ri	7.68	86	Ri	5.69
	13	Ri	7.66	83	Tr	5.75
	71	Tr	7.61	32	Ri	5.77

TABLE 6

COMPARISON OF WEIGHTED AVERAGE SCORES BETWEEN SMITH AND WESLEYAN WHEN GROUPED BY ASSIGNED CATEGORIES

Category	A Smith Av. and P.E.	B Wesleyan Av. and P.E.	Difference AB and P.E. diff.	Chances in 100 that diff. AB is sig- nificant
Quantity	5.518±.0137	5.679±.0127	.161±.0187	100
Incongruity	5.750±.0133	5.754±.0121	.004±.0180	55
Unexpected	5.638±.0077	5.838±.0083	.200±.0113	100
Truth	5.566±.0115	5.780±.0116	.214±.0163	100
Superior	5.617±.0158	5.662±.0187	.045±.0245	89
Repression	5.448±.0172	6.116±.0115	.668±.0207	100
Ridiculous	5.854±.0082	5.794±.0070	.060±.0108	100
Total	5.680±.0055	5.801±.0040	.121±.0068	100

No. 42 was regarded as the best joke at Long Lane Farm and No. 35 as the poorest.

42. An elderly farmer drove into town one day and hitched his team to a telegraph post. "Here," exclaimed a burly policeman, "you can't hitch there."
"Can't eh?" shouted the irate farmer. "Well why have you got a sign up, 'Fine for hitching?'"
35. Our sympathy goes out to the scientist who bought a vacuum cleaner and then spent 15 years of his life looking for a dirty vacuum.

The Wesleyan group tended to rate all jokes slightly higher than the Smith group, though there was less variation, or dispersion, from the central tendency within the humor scores of the Wesleyan group. The Long Lane group presented the greatest range of variation in the total humor scores as well as having the highest mean total humor score.

In order that the figures in Table 6 might be obtained, the following procedure was followed. Stencils were made up for both Smith and Wesleyan in which a value was attached to each joke on the basis of the average value which had been assigned to that joke by the entire group. For instance, the Smith scores for the jokes which have been used as illustrations above were as follows: 1, 5.2; 2, 6.8; 7, 7.9; 9, 7.0; 12, 3.8; 30, 3.5; 35, 5.4; 42, 6.3; 88, 4.9; 99, 5.9; 100, 6.4; while the score for the same jokes at Wesleyan were 5.5, 6.4, 7.1, 6.1, 4.1, 4.0, 5.0, 5.6, 6.6, 5.9, 7.2, respectively.

TABLE 7
CHANCES IN 100 THAT DIFFERENCE IS SIGNIFICANT

	Quan- tity	Incon- gruity	Smith		Superior	Repres- sion	Ridicu- lous
			Unex- pected	Truth			
Quantity		100	100	97	100	98	100
Incongruity	100		100	100	100	100	100
Unexpected	100	100		100	79	100	100
Truth	100	84	100		96	100	100
Superior	71	100	100	100		100	100
Repression	100	100	100	100	100		100
Ridiculous	100	97	100	75	100	100	

Each blank was then rescored on the basis of these group scores. From these rescores, averages and probable errors were derived and the statistical significance of the difference between the values assigned to each category by each group determined (4). This method controls the variable of the value which any individual may assign to any joke and allows the differences between categorical judgments of humor by the two sex groups to become apparent. As Table 6 shows, there is a significant difference between these judgments. Practically every category differs significantly from every other category with respect to the value assigned to it. Evidently these judgments act as independent functions both within each sex group and between the two sexes.

In order that the difference in value attached to each category by each group might be compared we have worked out the statistical relationships shown in Table 7. As will be seen, 34 of the 42 comparisons show that the differences in values assigned are statistically significant. In the remaining 8 comparisons the chances are relatively good that the difference is a real one. In other words, the humor values assigned to any particular category by any relatively homogeneous group will show significantly different averages, depending on the nature of the category. From Tables 6 and 7 it is apparent that the Smith group evaluated the categories from best to poorest in the following order Ri, In, Un, Su, Tr. Qu, Re; while the order at Wesleyan was Re, Un, Ri, Tr, In, Qu, Su.

These differences in rank within each group or between the two groups are, as has been shown, statistically significant.

The comparison of the relative frequency with which each joke

TABLE 8
COMPARISON OF CATEGORICAL CLASSIFICATION BETWEEN SMITH AND WESLEYAN GROUPS, TOGETHER WITH THE
STATISTICAL SIGNIFICANCE OF EACH COMPARISON

	Smith		Wesleyan		P.E. of diff. between means	Diff./P.E. _{diff.}	Chances in 100 of significance
	Mean frequency	σx	Mean frequency	σx	P.E.		
Quantity	12.45	17.2	12.57	15.0	.90	.12 \pm 1.294	.1
Incongruity	10.32	14.0	11.37	9.7	.58	1.05 \pm .956	1.1
Unexpected	27.75	27.9	21.73	18.1	1.09	6.02 \pm 1.862	3.2
Truth	10.88	14.1	10.39	10.6	.64	.49 \pm .994	.5
Superior	5.98	13.5	5.54	9.6	.58	.44 \pm .932	.5
Repression	5.47	10.1	7.95	12.7	.76	2.48 \pm .938	2.6
Ridiculous	27.15	33.4	30.45	27.2	1.64	3.30 \pm 2.442	1.4
							83

was assigned to any particular category by either the Smith or Wesleyan group has been grouped in Table 8.

It will be remembered from Tables 6 and 7 that the differences in values assigned to the categories were significant both with respect to the categories themselves and between the groups. As Table 8 shows, the number of times each category was used at Smith and at Wesleyan are very closely comparable, the differences being unreliable, and the order of frequency of use being approximately the same.

In scoring the tests it was noticed that certain individuals placed a majority of the jokes in one single category. Such a lack of discrimination might be due to anyone of a number of causes such as stupidity, disinterestedness, lack of cooperation, inability to discriminate, etc. As Table 9 shows, the eight men at Wesleyan who scored their tests in this way were distinctly below the average intelligence of the Wesleyan group (only one was over the average of the group) but they were neither introverted nor extroverted as a group. At Smith and Long Lane Farm these individuals did not differ significantly in their test scores from the group averages. Evidently, lack of cooperation at Wesleyan was due to stupidity, but at Smith and Long Lane Farm other factors were at work.

From Table 10 it will be seen that the performance of the ten highest and ten lowest individuals in intelligence and introversion-extroversion of each of the three groups has been tabulated in order to determine whether or not any relationships exist between these

TABLE 9

INTELLIGENCE RANKING AND INTROVERSION OF INDIVIDUALS WHO PLACED MORE THAN 50% OF THEIR CATEGORICAL CLASSIFICATIONS IN ONE GROUP, AS COMPARED TO THE GROUP AVERAGES

Group	No. of cases	Av. percentile intelligence rank	Av. introv.-extrov. score	Categories used
Wesleyan	8	30.7	23.5	7 Ri
	124	52.4	22.0	1 Un
Smith	11	54.2	20.5	2 Ri
	151	52.7	22.0	9 Un
Long Lane Farm	14	82.7	19.7	7 Ri
				2 Un
	112	82.8	23.4	4 Tr
				1 Qu

TABLE 10
ANALYSIS OF THE PERFORMANCE OF THOSE INDIVIDUALS OF HIGHEST OR LOWEST INTELLIGENCE AND OF GREATEST
INTROVERSION OR EXTROVERSION WITH RESPECT TO THEIR "H" TEST

	Wesleyan					Smith					Long Lane Farm				
	A. of A rat- ings	A. of no. of intel. % rank	A. of introv. score	A. of H score	A. of no. of A rat- ings	A. of no. of E rat- ings	A. of intel. % rank	A. of introv. score	A. of H score	A. of no. of A rat- ings	A. of no. of E rat- ings	A. of IQ score	A. of introv. score	A. of H score	A. of H score
10 highest percentile intelligence rankings	2.8	6.4	94.7	21.3	5.66	4.1	11.4	95.8	23.2	5.13	22.4	17.1	105.7	22.7	6.34
10 lowest percentile intelligence rankings	5.7	11.7	5.7	23.9	5.37	3.1	15.1	7.0	20.4	5.00	14.9	6.3	64.6	24.5	6.78
10 highest introversion scores	6.5	6.3	57.1	32.1	6.12	4.6	10.1	59.0	31.1	5.54	10.3	5.9	80.1	31.8	6.43
10 lowest introversion scores	3.7	12.0	47.3	13.0	5.24	6.5	10.3	67.9	11.9	5.71	4.5	4.1	88.2	13.0	6.32
Av. of entire group	4.8	6.4	52.4	22.0	5.77	5.9	10.4	52.7	22.0	5.59	18.7	11.7	82.4	22.7	6.63

extreme groups and total humor scores or categorical classifications. The ten highest in intelligence at Wesleyan gave less than half as many "A" grades to jokes as the ten lowest, while the ten highest in introversion in the same group showed a much higher total humor score than the ten most extroverted men. Quite in contrast with the Wesleyan men, the most introverted of the Smith girls tend to rate the jokes lower than the average. Between the ten highest and ten lowest in intelligence at Smith, there were no significant differences in either total humor score or in categorical classification. Among the Long Lane group the ten highest in intelligence had an average total humor score considerably above that of the ten lowest but no significant difference existed between the selection of humor categories or choice of the best jokes in the case of these extremes. The ten extreme introverts of the Long Lane group showed a much higher average total humor score than the most extroverted, the opposite of the corresponding extremes of the Smith group.

The figures in Table 11 were derived in the following way: It will be remembered that in making up this scale of humor we chose jokes which in our opinion were fairly exactly defined by our defined

TABLE 11

ANALYSIS OF THE CATEGORICAL JUDGMENTS MADE BY THE SMITH AND
WESLEYAN COLLEGE GROUPS

Jokes which were selected by judges to be illustrative of these categories	Frequency of these jokes in list of 100	Degree of concurrence	
		Smith	Wesleyan
Quantity	13	Qu 62%	Qu 54%
		Un 22%	Ri 22%
Incongruity	15	In 27%	In 6%
		Un 67%	Un 87%
Unexpected	18	Un 74%	Un 40%
		Ri 26%	Ri 53%
		Tr 11%	Tr 22%
Truth	13	Un 50%	Un 28%
		Ri 28%	Ri 45%
Superiority	13	Su 28%	Su 14%
		Ri 46%	Ri 62%
		Re 15%	Re 38%
Repression	13	Un 62%	Un 38%
		Ri 23%	Ri 31%
Ridiculous	13	Ri 77%	Ri 92%

categories of humor. In this way we had 13 jokes of quantity, 15 jokes of incongruity, and so on. The tabulated results of the test as given at Smith and at Wesleyan were examined and the modal choice for each particular joke was determined. This modal choice was then referred to the original classification which had been set up by the authors. The figures in the table give, then, the percentage of modal concurrence between the group at Smith College and at Wesleyan University and the standard set up by the judges. It will be seen that, with the exception of "quantity," "unexpected," and "ridiculous," little concurrence occurs. It is also apparent that there is a marked tendency to classify jokes as either unexpected or ridiculous. That is to say, the average judge was either incapable or unwilling to analyze further than these two simple terms. It is probable that the higher percentage of concurrence in the case of quantity jokes is due both to the fact that the Qu was the first in the list of possible choices and to the fact that "quantity" in these jokes is usually very obvious. Jokes of incongruity, truth, superiority, and repression are evidently difficult to classify.

Table 12 gives a comparison of the jokes which were common in our study and in the study of Dr. Kambouropoulou. Due to difference in instructions, the classification of the jokes by our groups and by the Vassar group differs. However, there is a very close correspondence between humor value assigned by both the Smith and the Vassar groups. We consider this comparison of interest since it offers evidence that the relative humor value for diverse groups of the same sex and same social status is probably representative.

DISCUSSION AND CONCLUSIONS

It is, of course, apparent that the present "H" test is not a *measure* of the sense of humor. Indeed, it is scarcely probable that it is even a good criterion of humor. The assigning of humor value to jokes under the conditions of this test does not constitute a valid indicator of humor in the various senses of that term. Merely rating jokes is, itself, an intellectual process, only rarely accomplished by any overt signs of emotion, such as laughter. For the most part, the jokes carried with them very little that was unexpected. Most of the procedure, then, was one which called for an intellectual judgment and classification.

However, the performance with which we were dealing had something to do with the so-called sense of humor. There were

TABLE 12
COMPARISON OF RESULTS OF OUR STUDY WITH THOSE OF KAMBOUROPOULOU ON JOKES IN COMMON IN EACH STUDY

Our number	Kambou- ropoulou number	Vassar		Our judges' classification	Rank on basis of 100	Smith		Long Lane	Wesleyan
		Rank equated on basis of 100	Kambou- ropoulou classification			Predomi- nate classification	Rank on basis of 100		
		First grading	Second grading					Predomi- nate classification	Rank on basis of 100
5	24	39	58	Su(b)	30	Tr	74	Un	75
6	26	22	17	Su(c)	5	Un	50	Tr	12
7	28	3	3	Su(c)	1	Ri	55	Qu	2
8	12	28	33	Su(c)	20	Tr	65	Tr	26
9	13	14	19	Su(b)	2	Un	80	In	34
95	18	17	28	Su(b)	60	Ri	70	Un	69
96	19	56	36	In(e)	57	Ri	58	Tr	78
97	2	44	40	In(d)	58	Ri	76	Ri	84
99	30	25	22	In(e)	37	Un	83	Ri	44

certainly great individual variations and group variations in the values assigned and in the categories into which the jokes were classified. From the analysis of the data above, it is clear that this performance behaves as an independent personality factor. It does not correlate significantly with any other of the measures which were at our disposal. It acted neither as a measure of intelligence nor as a means of predicting any of the other personality factors with which we were dealing. The performance with which we were dealing is a complex one made up of many components, no one of which was present in a sufficiently large amount to be revealed by our statistical analysis.

The process of categorical judgment is an entirely different operation, psychologically, than that of assigning values to the degree of humor experienced. This process of assigning jokes to categories is, after all, an intellectual matter. We found that the more intelligent persons tended to assign higher values to the incongruous and truth categories than to any other. We found that introverts tended to use the repression category and to value jokes so classified highly, while extroverts tended to use the truth category and to value those jokes highly. These findings, of course, are only tentative and indicative, but we hope that future work will confirm or deny this relationship.

One of the most interesting things which comes out of this study is that of the different type of response or judgment as found between the sexes. As we have pointed out, there is a fairly significant difference between the average humor value assigned by men and women, men of the same age and social status tending to value the jokes slightly but significantly higher than did the women. It was also true that the men tended to assign more very high values than did the women. Further, there is a significant difference between the categories in which the jokes were assigned by the men and by the women. These differences in categorical judgment are truly statistically significant differences. The order of frequency of assignment at Smith (as will be seen from Table 8) is unexpected, ridiculous, quantity, truth, incongruity, superiority, repression; while at Wesleyan the order is ridiculous, unexpected, quantity, incongruity, truth, repression, and superiority. As was pointed out on page 165 above, the order of *values* attached to each category at Smith was, from highest to lowest (Table 6), Ri, In, Un, Su, Tr, Qu, and Re, while the order at Wesleyan was Re, Un, Ri, Tr, In, Qu,

and Su. Inspection and comparison of these orders shows that the frequency of assignment to the various categories was substantially the same at Smith and Wesleyan; in no case is there over one place disagreement in rank. However, the values assigned to the categories at Smith and Wesleyan show no correspondence.

It is evident then that there is a real sex difference in the way in which our groups evaluated the jokes in light of the way in which they interpreted or made categorical judgments of these jokes.

We would interpret this sex difference in performance on the basis of social custom and habit. In the first place, the jokes were selected and grouped by men. It is possible that a similar list compiled by women and given to the two groups would reverse the relationship with regard to the humor values. However, the selection of the categories (which is in a sense the way in which the joke is interpreted) to which the jokes were assigned is probably influenced chiefly by the entire past experience of the individual. In brief, it seems that the "H" test does reflect a personality factor which is relatively independent and which reflects the influence of social training and habit formation.

It is our opinion that it would be possible to revise this test both from the standpoint of content and from that of administration and to bring out personality differences which would show statistical significance as well as psychological interest. We hope to continue this work and to bring out such a revision later.

ACKNOWLEDGMENTS

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SUMMARY

1. A paper-and-pencil test has been devised which gives certain indications concerning humor. The result obtained by the use of

this test shows that it is sampling and giving relative scores of some independent factor.

2. The way in which jokes are assigned to categorical classifications is related, to some extent, to intelligence and to introversion.

3. The judgments which assign the jokes at various categories of humor reflect true differences in performance both between individuals, between different social groups, and between the sexes.

We have found sex differences in the total humor score, in the categorical grouping and categorical evaluating of the jokes.

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*New York State Psychiatric Institute
and Hospital
New York City*

*9 Bayside Place
Jersey City, New Jersey*

L'HUMOUR ET SA RELATION AUX AUTRES TRAITS DE PERSONNALITÉ

(Résumé)

On a fait un test où l'on emploie un papier et un crayon, lequel indique des certaines choses sur l'humour. Le résultat obtenu par l'emploi de ce test montre que c'est le sampling et qu'on donne les résultats relatifs de quelque facteur indépendant.

La manière dont on place les plaisanteries dans des classifications catégoriques a quelque relation avec l'intelligence et l'introversion.

Les jugements qui placent les plaisanteries dans les diverses catégories de l'humour indiquent de vraies différences d'exécution, entre les individus, entre les divers groupes sociaux, et entre les sexes.

On a trouvé des différences de sexe dans le résultat total de l'humour, dans les groupements catégoriques et dans les évaluations catégoriques des plaisanteries.

LANDIS ET ROSS

DER HUMOR UND SEINE BEZIEHUNG ZU ANDEREN PERSÖNLICHKEITSEIGENSCHAFTEN

(Referat)

Es ist eine, mit Bleistift und Papier ausführbare, Prüfung erfunden worden, die in Bezug auf den Humor gewisse Anweisungen gibt. Das durch Verwendung dieses Tests erhaltene Resultat erweist, dass der Test irgend eine selbständige Einwirkung [independent factor] erprobt [samples], und die relative Stärke dieser Einwirkung berechnen lässt.

Die Weise, auf die Witze gewissen kategorischen Gruppen zugewiesen werden [are assigned to categorical classifications] steht bis zu einem gewissen Grade mit Intelligenz und mit der Stärke der Introversion in Beziehung.

Die Urteile, durch die die Witze als gewissen Gruppen angehörig klassiert werden, weisen auf echte Unterschiede in Bezug auf Leistung hin,—Unterschiede sowohl zwischen Individuen wie zwischen verschiedenen sozialen Gruppen und zwischen den Geschlechtern.

Es zeigten sich Geschlechtsunterschiede in Bezug auf die berechnete Humorleistung [total humor score], die kategorische Gruppierung, und die kategorische Bewertung der Witze.

LANDIS UND ROSS

THE COMPARATIVE SUSCEPTIBILITY OF THREE AGE LEVELS TO THE SUGGESTION OF GROUP VERSUS EXPERT OPINION*¹

From the Psychological Laboratory of the State University of Iowa

CLARE H. MARPLE

It is recognized that various age, economic, and social groups exhibit different degrees of suggestibility, but little actual research has been centered upon either the measurement of such differences or the comparative effectiveness of various forms in everyday use. Suggestion itself has had meager attention outside of advertising and political psychology yet its importance to social psychology and to education is well understood.

This study is an effort to measure the comparative degree to which three age groups are susceptible to the influence of two forms of suggestion. The groups selected were 300 high-school seniors, 300 college seniors, and 300 representative adults in the state of Iowa. The forms of suggestion were majority opinion, illustrated by variations of the much exploited phrase "Fifty million Frenchmen can't be wrong"; and expert or specialist opinion, as expressed in the phrase "twenty eminent engineers agree that good oil is made and not found," or "Dr. Adam Appelle, Bengalia's famous physician, advises eating Fresh Yeast for health."

The materials employed to measure opinion changes in these three groups consisted of controversial problems or situations—topics on which there appeared to be wide differences of opinion in the popular mind and about which there could be but little settled, positive conviction. A list of 200 such problems was compiled and submitted to professors, school superintendents, newspaper men, and others for criticism and suggestions. For their guidance several criteria of acceptability were included, and comments as to additions, deletions, or revision were invited. By such a procedure the original list was reduced to one of 75 specific problems. The list drew heavily

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upon particular policies in economics and education, though political problems, social and ethical situations were also considerably in evidence. For the purposes of the experiment the list was treated as a whole. The following problems are typical of the list:

1. The installment plan of buying has done more harm than good to the stability of American economic life.
2. I favor government purchase of surplus agricultural crops.
3. The rate of gain in all occupations and industries should be regulated by law, as is now the case with railroads.
4. Real estate owned by religious organizations should be subject to taxation.
5. Teachers should be assigned to their positions by educational specialists rather than by school boards.
6. Attendance at chapel or other religious exercises should be optional in our schools and colleges.
7. Military training in schools and colleges should be optional rather than compulsory.
8. Declarations of war should be submitted to popular vote before becoming effective.
9. Lobbyists should be required to register, specify what interest they represent, then report to the government the exact nature and extent of their efforts to influence legislation or other governmental procedure.
10. I favor the renewal of diplomatic relations between the United States and Russia.
11. Would knowledge that a young woman smokes cigarettes prejudice you against her?
12. The Federal Radio Commission should prohibit the use of the radio for advertising tobacco.
13. A "bootlegger" has wrecked his car thirty miles from town on a cold winter night. Would you, knowing his business, aid him?
14. A owes B \$5.00 which he refuses to pay though he is able. B sees A drop a \$5.00 bill which he picks up. Is B justified in keeping the bill as payment for the debt which A owes him?
15. The white race is mentally superior to all other races.

Three alternatives were provided for the registry of opinion. Before each of the 75 problems was printed the words, *Yes*, *Uncertain*, and *No*, and on the first page of the printed form were provided simple directions for checking the items.

To have used the same subjects for the whole experiment would have required the submission of the problem list to the same groups four times. In order to avoid familiarity with the materials which would have introduced a memory factor, certain alternatives were considered. The preparation of a second list of problems was considered, but this plan would have necessitated considerable experi-

mentation to assure a satisfactory degree of correlation. The plan adopted was one which would include a sufficiently large number of subjects to make it unnecessary for any person to record his judgments more than twice. The opinion changes of 900 subjects are included in the study, 300 subjects from each of the three groups. The mean age for each of the three groups, together with the standard deviations from the means, are shown in Table 1.

TABLE 1

	Median age	S.D.	% males
High-school seniors	17.70	.83	39.61
College seniors	22.25	1.99	49.51
Representative adults	39.10	14.46	30.70

The form was first submitted to the 900 subjects with no factor of suggestion present. An attempt was made to control the time factor by having a period of about one month lapse between the first and second submissions of the form. This lapse of time tended to render the memory factor negligible, and afforded opportunity to use the tabulations derived from the first submission as a basis for ascertaining group or majority consensus of opinion, needed for later submission. Likewise, time was needed to compile the experts' views. The complete schedule is shown in Table 2.

TABLE 2

	H.-S. seniors	Age groups College seniors	Adults
Control group <i>N</i> =300	A. Initial test B. Repeated month later <i>N</i> =100	A. Initial test B. Repeated month later <i>N</i> =100	A. Initial test B. Repeated month later <i>N</i> =100
Majority opinion influence <i>N</i> =300	A. Initial test B. Retest after shown majority opinions <i>N</i> =100	Same as H.-S. group	
Expert opinion influence <i>N</i> =300	A. Initial test B. Retest after shown experts' opinions <i>N</i> =100	Same as H.-S. group	

It will be observed that provision was made for 100 subjects in each group to register their opinions and to repeat this after a lapse of one month. The first was a control group used to find the extent of opinion changes due to chance. Another 100 in each group made the initial registration of opinion, which was followed a month later with another registration made after the result of the group opinion was made known to them. A third 100 in each group made also the initial registration and followed this one month later with a second record made after being informed of the experts' consensus. In this way the influence of majority and expert opinion was to be derived.

The first papers from these 300 subjects were tabulated accordingly as the subjects answered *Yes—Uncertain—No*, the record being kept separate for each of the 75 items. Furthermore, the tabulations were kept separate for the three groups in order to derive three distinct analyses of group or majority opinion. When these tabulations were completed, "suggestion forms" were prepared by placing a green circle before the recording which represented (in most cases) a plurality of the vote. A carefully prepared explanation designed to make clear the meaning of the green circle accompanied the second recording. These 300 new recordings were then analyzed to ascertain the extent to which a knowledge of group preference facilitated the changing of individual opinion to agree with group opinion as compared with changes due to chance.

The original form was submitted to more than 40 "experts," recommended, for the most part, by members of the faculty of the University of Iowa. The list of experts included heads of departments in major American universities, college and university presidents, statesmen, and other distinguished leaders in American life. These experts were invited to register their preferences for the various items. Responses from 20 experts were tabulated accordingly as they answered *Yes*, *Uncertain*, or *No* for each of the 75 items. These data were made the basis for marking a new set of papers, expert preference being indicated by drawing a red circle before the answer for each item. A red circle thus meant that more of the 20 experts answered that way than any other way.

A form was provided in which the significance of the red circle was made clear. This third set of papers was submitted to the third 100 subjects in each of the three groups to measure the influence of the knowledge of expert preference. These 300 subjects having registered their judgments one month previously, comparison of the two

papers from each of the 300 subjects afforded a measure of the influence of expert opinion upon individual opinion, or the degree that a knowledge of expert opinion facilitates individual opinion changes to agree with the experts.

Care was at all times exercised against divulging to the subjects the purpose of the experiment, and the suggestive factors were introduced with no explanation concerning the reason for their use. It was evident in some cases, however, that the purpose was fully comprehended. All inquiries were tactfully evaded until the two administrations of the form were completed. An earnest attempt was made to cause all subjects to accept the representations made as sincere and authentic; and this was made possible through the cooperation of school officials and heads of other organizations. Assurances were given that the recorded judgments would have confidential treatment.

The data derived afford two lines of comparison, first, the comparative susceptibility of three age groups to suggestion, and, second, the influence of group opinion compared to the influence of expert opinion as they affect individual opinion.

Figure 1 presents graphically the significant findings of the experiment in terms of opinion changes. These results are stated in terms of mean percentages, that is, the mean percentage of changes which occurred in proportion to the total number of possible changes. *CC* presents the chance changes for 300 subjects, 100 in each of the three groups. Changes due to chance rank in a regularly descending scale with increasing age with 17.23 for the high-school group (Group 1), 15.9 for the college group (Group 2), and 13.76 for the adult group (Group 3). This may be indicative of a greater degree of certainty of opinion, or a more competent informational background, with increasing age.

Opinion changes to agree with *group* preference also show a gradual decline with the increase of age, with 64.24 for Group 1, 55.2 for Group 2, and 39.8 for Group 3. Hence high-school seniors appear to be influenced by group preference about 25% more than is the case with adults; and college seniors about 16% more than adults.

Results from the third 100 subjects in each of the three groups show that the mean percentage of changes to agree with expert preference was 51.23 for Group 1, 45.03 for Group 2, and 33.96 for Group 3. In Figure 1 *AGC* indicates the mean percentage of changes

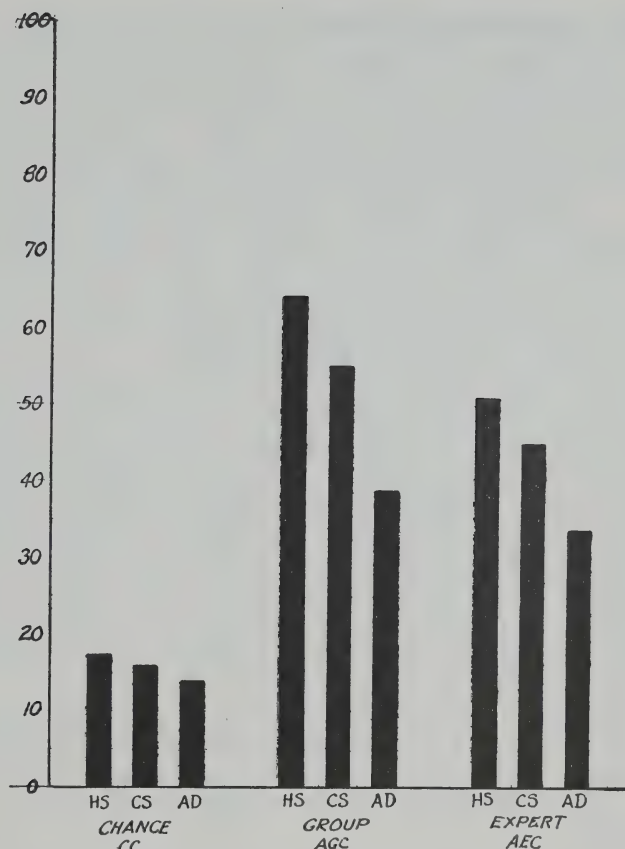


FIGURE 1

made to agree with group preference with the second 100 subjects in each of the three groups, while *AEC* affords a measure of the opinion changes made by the last 300 subjects to agree with expert preference in terms of mean percentages. It is significant to note that in every case, whether measuring changes due to chance, or those which occur in the presence of group or expert preference, there appears to be a decline of suggestibility with increasing age.

Turning to the comparative suggestibility of a single group when facing choices under the three types of conditions afforded in the

experiment, we find some significant data. In the high-school group the mean percentage of changes due to chance is only about one-fourth those made to agree with group preference, or 17.34 as against 64.24. Hence it may be stated that the suggestive influence of group preference facilitates an agreement of individual opinion to an extent of almost four times the total changes occasioned by chance. A knowledge of expert preference facilitates an agreement of individual opinion to an extent of almost exactly three times that due to chance, or 17.34 as against 51.23. These data appear to support the contention that high-school seniors are strongly influenced in their choices by what the group believes, and to a somewhat lesser extent by what the experts believe.

With the college group the total number of changes which occurred in terms of mean percentage were, due to chance, 15.9 against 55.2 made to agree with group preference. A knowledge of expert opinion facilitates individual agreement almost three times that due to chance, while the knowledge of group preference wields an influence even greater. With the adult group the contrasts are somewhat less marked, and yet an awareness of group preference seems to occasion about three times the changes to agree than the total mean percentage of changes due to chance; while the mean percentage of changes to agree with expert opinion is about two and one-half times greater than all changes due to chance.

It is interesting to note that the influence of group preference in facilitating agreement is in every case greater than the influence of expert opinion, indicating, therefore, that group opinion, with these groups, is more powerful in affecting individual agreement than is expert opinion.

The only other significant study within this limited field is that by Moore (1) who dealt wholly with a college group. Professor Moore used three specialized types of materials, namely, linguistic and ethical judgments, and musical cadences. The types of suggestion were similar to those employed in this experiment. Moore obtained mean percentages of changes due to chance, 13.5, 10.3, and 25.1 for linguistic, ethical, and musical judgments respectively. These data compare favorably with the mean percentage of chance changes of 15.9 for the college senior group of this study. When group preference was used, Moore's subjects changed to agree with group opinion with 62.2, 50.1, and 42.8 for linguistic, ethical, and musical judgments respectively. These mean percentages obtained

by Moore compare favorably with the mean percentage obtained with the college senior group of this study which was 55.2. In the study by Moore the percentages of changes to agree with expert preference were 48, 47.8, and 62.2 respectively for linguistic, ethical, and musical judgments. These compare favorably with the mean percentage of 45.03, mean percentage of changes to agree with expert opinion found in this study with the college group.

No attempt was made to measure negative suggestibility, though the tabulations show some indications of it. A study of contra-suggestibility as against suggestibility among different groups, and with the use of many types of materials, would probably reveal interesting individual variations with regard to firmness of decision.

In interpreting the findings of this experiment, certain conditioning factors and limitations are recognized. The findings are indicative rather than conclusive, yet it is evident that the presence of the suggestive factors of group and expert preference yielded an influence upon the three groups studied to a really significant degree.

The very nature of "opinion" makes extremely difficult its objective measurement with commonly used procedures. It is exceedingly difficult to analyze, segregate, and control the multiplicity of stimuli which play freely upon the forming and altering of judgments. Since opinions are subjective, their objective measurement is complicated. Furthermore, since the list of problems used in the experiment contained many moot questions of the day, it would seem inevitable that other influences, aside from the factors of group and expert preference, played a part in occasioning certain changes of opinion. Such influences, however, appear to be small.

Another difficulty experienced was the selecting of "experts" to whom the form might be submitted in order to derive a basis for expert opinion. It may be that only an expert within a specified field is competent to determine who are experts within that field. But what "expert" shall initiate the selection? The procedure adopted in this experiment, as previously explained, was regarded as practicable and sufficient for the purpose of this experiment. The exact method of determining bases for expert and group preferences was of little consequence since a fictitious representation would have served as well, could the subjects participating in this phase of the study have been assured that the basis was genuine. The fact that the basis used was genuine should enhance the validity of the influence of expert opinion.

A factor not entirely known is that of the information in possession of each subject, or the extent to which judgments were based on actual information as against guessing; or to what degree changes made were due solely to the suggestion present, and to what degree suggestion was the occasion for shifting guesses. It is unlikely, however, that the latter possibility operated to any considerable extent for the reason that effort was made to select situations with subject matter of interest to all the age levels involved and such problems as would probably come within the information and interest ranges of the three groups.

The data presented in this study seem to justify the following conclusions:

1. Individuals from high-school senior, college senior, and "typical adult" levels, of ages chiefly between 16 and 45, are definitely susceptible to the influence of what the group thinks and of the opinion of experts.

2. Somewhat greater weight is assigned to group opinion or to what "everyone" believes. This ascendancy of the group holds for all three classes of subjects.

3. The influence of the suggestion of group opinion is roughly four times that of chance and the influence of expert opinion roughly three times chance.

4. In the age scale the older adults are consistently less suggestible than the younger groups, further substantiating the belief that suggestibility varies with age even through the late youth and adult range.

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University of Iowa
Iowa City, Iowa

L'INFLUENCE COMPARATIVE DE L'OPINION COLLECTIVE ET L'OPINION EXPERTE AUX DIVERS NIVEAUX D'ÂGE

(Résumé)

Cette étude a mesuré le degré comparatif auquel trois groupes, composés chacun de personnes du même âge (17, 22, 39 ans), comprenant des élèves de dernière année de la "high school," des étudiants de dernière année de l'université ("college") et de divers adultes, ont été sensibles à l'influence de la suggestion de l'opinion adulte et de la suggestion de l'opinion collective. Les outils employés ont été 75 propositions en forme de déclarations que le sujet a acceptées, rejetées, ou appelées "incertaines." Toutes les propositions ont été des questions controversées, sur lesquelles personne ne pourrait avoir des convictions établies. Neuf cents sujets ont noté leurs attitudes sur des listes imprimées. Après un délai d'un mois un groupe de 300 personnes, 100 de chaque groupe d'âges, a fait une seconde notation indiquant le nombre d'erreurs dues au hasard. Un deuxième groupe de 300, 100 de chaque groupe, a noté leurs opinions après qu'on leur a montré l'opinion accordée de 25 experts pour chaque proposition. Ceci a donné l'influence de l'opinion experte ou spécialiste. Un troisième groupe de 300, 100 de chaque groupe d'âges, a fait une seconde notation après qu'on leur a montré l'opinion de la plupart des membres des groupes pour chaque proposition. Ceci a montré l'étendue de l'influence de l'opinion collective.

Les résultats montrent que les individus dans tous les trois groupes d'âges sont distinctement sensibles aux opinions du groupe et à ce que croient les experts. L'influence collective s'est montrée 4 fois celle du hasard et l'influence des experts 3 fois celle du hasard. Les résultats montrent d'ailleurs que le group des adultes est un peu moins sensible que le groupe des étudiants et que celui-ci est moins sensible que le groupe des élèves de la "high school." Cette différence de suggestibilité se maintient dans toutes les trois divisions.

MARPLE

DIE RELATIVE STÄRKE DER EINWIRKUNG DER MEINUNG VON GRUPPEN UND VON SACHVERSTÄNDIGEN, AUF VERSCHIEDENEN ALTERSNIVEAUX

(Referat)

In dieser Untersuchung mass man relativ den Grad bis zu dem drei Altersgruppen (bestehend respektiv aus durchschnittlich 17, 22, und 39 jährigen, respektiv Primaner [high-school seniors], Studenten im letzten Studiumsjahr, und Erwachsene verschiedener Art vertretend, für die Einwirkung der Suggestion der Sachverständigenmeinung [expert opinion] und der Gruppenmeinung empfänglich waren. Das verwendete Material bestand aus 75 Lehrsätzen, in der Form von Behauptungen gegeben, die die Versuchspersonen entweder bejahten, verneinten, oder als "ungewiss" registrierten. Alle Lehrsätze stellten Streitfragen dar, über die Niemand entschiedene Meinungen haben konnte. 900 Versuchspersonen registrierten auf gedruckten Listen ihre Einstellungen. Nach Verlauf eines Monats registrierten 300 Versuchspersonen,—100 aus jeder Altersgruppe,—nochmals, hierdurch auf den Umfang der zufälligen Irrtümer [chance errors] hinweisend. Eine zweite Gruppe von 300,—wieder 100 aus jeder Alters-

gruppe,—registrierten ihre Meinungen nachdem man ihnen die übereinstimmende Meinung [consensus of opinion] 25 Sachverständiger gezeigt hatte. Auf diese Weise erforschte man die Einwirkung der Meinung von Spezialisten und Sachverständigen. Eine dritte Gruppe von 300,—nochmals aus 100 aus jeder Altersgruppe bestehend,—registrierte zum zweiten Mal nachdem man ihnen die Meinung der Mehrzahl der Gruppe über jede Behauptung gezeigt hatte. Auf diese Weise enthüllte man den Umfang der Einwirkung der Gruppenmeinung.

Die Befunde erweisen, dass Individuen aus allen drei Altersgruppen für die Einwirkung der Ansicht der Gruppe und für die der Meinung der Sachverständigen sehr empfindlich sind. Die Einwirkung der Gruppe erwies sich als 4 Mal so stark wie die Einwirkung des Zufalls, und die Einwirkung des Sachverständigen als ungefähr 3 Mal so stark wie die des Zufalls. Durch die Befunde wird ferner erwiesen, dass die älteste Gruppe etwas weniger suggerierbar ist, als die Studentengruppe, und dass die letztere wieder weniger suggerierbar ist, als die Gymnasiastengruppe [high-school group]. Dieser Unterschied in Bezug auf Suggestibilität bezieht sich auf alle drei Abteilungen.

MARPLE

THE PERSONALITY AND EMOTIONS OF MEN*

EDWIN G. FLEMMING

In a former study by the author (1) it was shown how emotional steadiness, expressiveness, and adjustment were related to pleasingness of personality. In a later investigation (2) it was found that social intelligence appeared to be of some significance as a contributor to the pleasingness of college men.

The purpose of the present inquiry is to determine whether there is any correspondence between emotional responses and personality characteristics.

TEST, CRITERIA, AND SUBJECTS

For a measure of emotional responses the author revised the Pressey X-O test in such a way as to permit various methods of scoring, both for affectivity or emotional expressiveness, and for deviation from the usual mode of expression of the group. Parts I, III, and IV of the Pressey test were used; Part II is an association test and could not be arranged for use in this study. The words of the Pressey test were arranged in a column instead of in rows, and opposite each word were the figures from minus five, through zero, to plus five.

The directions for Part A of the revised test were as follows:

Opposite each of the following words draw a circle around the number that indicates the degree of pleasant or unpleasant meaning that the word has for you. If the word has a decidedly unpleasant meaning, draw a circle around the minus 5 at the extreme left; if it has a decidedly pleasant meaning, draw a circle around the 5 at the extreme right; if it is neither pleasant nor unpleasant in meaning to you, draw a circle around the 0. If it is only relatively pleasant or unpleasant, draw a circle around the number which most adequately represents the relative degree of pleasantness or unpleasantness. The minus sign signifies the unpleasant side of the scale; no sign represents the pleasant side of the scale.

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Do not study over your responses; immediate judgments are desired. Encircle only ONE number for each word, but be sure to indicate your response to EVERY word.

Similar directions were given for Part B and for Part C, except that in Part B the words represented something praiseworthy, or blameworthy, and in Part C they represented things worrisome, fearful, or dreadful, on the one hand, or joyful, on the other.

Twenty-two different scores were calculated, and each part scored separately.

The criteria against which these scores were checked were ratings by both men and women of pleasingness of personality, emotional steadiness, emotional expressiveness, and social adjustment—the same as those used in the report on pleasing personality (1). The number of ratings secured for each subject ranged from over 5 to 134. The average number of ratings on pleasingness was about 51, on steadiness about 35, on expressiveness about 34, and on social adjustment about 37. Each trait judged was defined specifically and rated by the judges on a scale of 10. The average rating was taken as the score of the subject on each of the characteristics on which he was judged.

The subjects were 89 college men taking with others a course in elementary psychology. They were all of sophomore rank or above, but mostly sophomores. The test was given twice; the first time in November, and the second time after the Christmas recess.¹

For the purpose of checking all initial correlations, the revised test was given the next year to a second group of 78 sophomore men under similar conditions. Judgments of fellow students, both men and women, on the same criteria of personality were also secured with the second group of men under the same conditions as with the first group.

RESULTS

The reliability coefficients of the three parts of the test range from .48 to .79; the average for Part A is .59; for Part B, .67; for Part C, .71; and for the entire test, .72.

All of the correlations between the criteria and the various scores are low. The highest correlation (.30) is that between emotional

¹In securing deviation scores for the second giving of the test, instead of using the norms established by the first administration of the test, new norms were found on the basis of the second test results.

expressiveness and score IX A, which is the index of variability of the pleasant-unpleasant responses. The next highest correlation ($-.29$) is between pleasingness and score XX B, which represents the number of times that the subject deviates in a direction opposite from the group on the blameworthy-praiseworthy responses.

In generalizing, we might say that the more expressive individuals show a tendency toward a greater index of variability in their pleasant-unpleasant emotional responses than do the unexpressive; and that unpleasant individuals show a tendency to accord praise and blame in a direction opposed to the normal responses of the group.

These tendencies are relatively slight, but, along with a few others that will be considered, they are sufficient to warrant following up.

Pleasingness. If it is true, and can be verified, that those individuals are unpleasant to their fellows whose praises and blames are in a direction opposite to the group, it is a finding of some importance.

It happens that in Part B, the part that calls for blameworthy-praiseworthy responses, the distributions of the ratings on different words vary considerably. In some cases the mode is definitely negative or blameworthy, being -4 or -5 ; in other cases the mode is definitely positive in the same way. But there are cases in which the mode of the distribution is 0 with an appearance of normality in the distribution; while in other cases, although the mode is zero, the distribution tapers off to one side only, with a few scattering ratings on the opposite side. There are also several bi-modal distributions, with the modes at 0 and 5.

Atypical distributions, such as those with the mode at 0 and no or few plus responses, and bi-modal distributions, would be likely to obscure a general tendency for unpleasantness to be associated with deviations in a direction opposite from that of the group; and a normal distribution with the mode at 0 and the average not reliably positive or negative would also be likely to obscure results. So it was deemed advisable, to test out the generalization, to use only those words in which the mode was definitely negative, either -4 or -5 . The words on which the mode was similarly positive were not used because they were so relatively few.

With a deviation score secured on this basis the correlation with the first group was raised from $-.29$ (the correlation secured with score XX B and pleasingness) to $-.33$, which corroborates the logic of the process of elimination of the words not to be used in getting the deviation score, and seems to substantiate the generaliza-

tion that pleasingness of personality is a function of conformity with group standards of judgment on blameworthy actions or ideas.

However, when we apply the same norms to the second group, we find the correlation to be .07. Our generalization apparently is not tenable.

In arriving at this new deviation score for the second group the norms established by the first group were used. It may be that the generalization would hold if we used as a standard the norms set by the second group itself. The scores on pleasingness consisted of the ratings of both men and women.

To test the generalization further with the second group, a score was now found on pleasingness from the ratings of the men only; and the norms from which deviation was calculated were the norms established by the second group itself.

With this procedure the correlation between pleasingness and deviation in a direction opposite from that of the group, for the second group, was found to be .06. Quite evidently the generalization is untenable.

The next thought that occurred was the possibility that a more detailed study of the words in the test might reveal some relationship with pleasingness that would prove consistent with the second group.

The 25 most pleasant men were separated from the rest of the group, and the 25 most unpleasant men. The ratings of the 25 pleasant men were tallied separately from the ratings of the 25 most unpleasant men. The average rating for each word by each group was then found, and the differences and the reliability of the differences for each word calculated. Those words were then chosen on which the chances were 90 or more in 100 that the difference in the average rating made by these two groups was reliable. On the basis of these words a new score was figured. The ratings by the most pleasant men were taken as a standard. Any rating of a word more than one sigma in the direction opposite to that of the most pleasant group was scored one toward unpleasantness.

This method of scoring, when applied to the entire first group, yielded, as would be expected, fairly satisfactory correlations. On Part A the correlation with pleasingness was $-.41$; on Part B, $-.42$; and on Part C, $-.32$; while for Parts A, B, and C combined the correlation was $-.58$.

These correlations are, of course, spurious because the men used to set the standard from which deviation was figured comprised over

50% of the group. If this new method is to have any significance it must stand up with an entirely different group, none of whom was used in arriving at the standard. When the new standard is applied to the second independent group we find the correlations to be for Part A, .11; for part B, .10; for part C, —.16; and for all three parts combined, .06.

So this method of scoring, by taking into consideration only those words on which there is a reliable or near reliable difference between the average ratings of the most pleasant men and the most unpleasant men, appears to be of no value when applied to another group. It is barely possible that by using much larger groups to set the standard, a more valid measure could be developed.

Although all the correlations between pleasingness and the numerous scores are low, they were examined closely with the idea that combinations of scores might yield significant multiple or partial correlations. Numerous combinations were tried out, but they did not live up to their superficial promise; and no multiples were found that were higher than the simple correlation with the score XX B of —.29. The intercorrelations between different scores are too high to alter the correlations with the criterion to any significant extent.

Before coming to the apparently inevitable conclusion that there is no significant relationship between emotion as measured by the revision of the Pressey test and pleasingness of personality, one more score was tried.

If you will visualize the test for a moment, with ratings ranging from —5, through 0, to +5, you will observe that a sigma figured in the usual way is a measure of the variability of the ratings on the test, and not a measure of the variability of the intensity of the responses. As a matter of fact, a rating of +5 is as intense as a rating of —5, and if all the words had been rated by a subject as either —5 or +5, his intensity would be 5, and his variability 0. But with the sigma figured in the ordinary way, considering —5 as at one extreme and +5 as at the other, the average intensity would be somewhere near 0 and the variability quite considerable.

The score now figured considered the minus and plus scores of the same value on the scale of distribution running from 0 to 5, and represents the variability of the intensity, as indicated in the sigma of the distribution of intensities regardless of whether they were minus or plus intensities.

The sigma of the intensity of the responses correlates with pleasingness as follows: on Part A, .13; on Part B, .11; and on Part C, —.15.

None of these correlations appears to be of any significance; they are all below .20 and not uniform in sign, which would seem to indicate that there probably is something unsatisfactory about the test; certainly something lacking as anything like a hopeful measure of pleasingness of personality.

But notice that Part C is presumably a measure of fear, while Part A is a measure of pleasant and unpleasant responses and Part B an indication of responses of praise and blame. The variability of the intensity in one emotional realm would logically seem to be highly correlated with the variability in another. If that proves to be so, then a combination of A and C, or B and C, or all three ought to yield a much higher and possibly significant correlation.

Various combinations of variability of intensity were experimented with, and the most satisfactory relationship was secured by means of a ratio secured as follows: The sigma of the intensity on Part C was divided by the sum of the sigma of the intensity on Part A plus the sigma of the intensity on Part B. This represents the percentage that the sigma of the intensity on Part C is of the sum of the sigma of the intensities on the other two parts. For the sake of brevity and clarity this will be called the "fear ratio."

This fear ratio correlates with pleasingness to the extent of —.33, indicating a tendency for those with a large fear ratio to have unpleasant personalities. In non-statistical language, it may be said that a large fear ratio indicates a greater uncertainty about one's fears than about one's other emotions; and when one shows greater uncertainty about one's fears than about one's other emotions, when one is more unsettled about one's fears, that condition is reflected in personality traits that are unpleasant to one's fellows.

But does this small correlation of —.33 hold up with another group any better than does the correlation of —.29 with score XX B?

Before trying to answer that question there are other observations that should be made. In the first place, the scatter diagram is such in appearance that one suspects a curvilinear relationship; and when we figure the curvilinear relationship of the fear ratio on pleasingness we get an eta of .46, that is, a raw eta. When corrected by Pearson's formula, it is reduced to .31; and, applying Blakeman's test for linearity, we find that the regression is linear. But these

discrepancies are possibly due to the fact that for determining accurately non-linear regression much larger numbers are needed than were used in this investigation.

In the second place, we notice that those individuals who have a fear ratio of less than 40, or, in other words, whose variability of intensity in fear responses is less than 40% of the variability of their intensity on the other two parts of the test, fall largely among the more pleasing individuals. Eighty-four per cent of those who have a fear ratio of less than 40 have a pleasingness rating of 6 or more on a scale of 10, and are among the upper 60% of pleasing individuals. The chances, then, are better than 8 to 2, or 4 to 1, that an individual with a fear ratio of less than 40 will have a relatively pleasing personality.

TABLE 1

SHOWING THE DISTRIBUTION OF FEAR RATIOS AMONG THOSE MEN WITH RATINGS ON PLEASINGNESS ABOVE AND BELOW 6

First test

		Pleasingness	
		0—5.9	6.0—10
Fear ratio	50 —	9	12
	45 — 49	14	9
	40 — 44	9	17
	— 39	3	16

One cannot say that a high fear ratio indicates an unpleasant personality; but one can say that a low fear ratio—below 40—indicates a relatively pleasant personality.

In a previous report (1) it was shown that pleasingness is related to expressiveness to a small degree (.27) and to steadiness to a somewhat greater extent (— .46).

By adding steadiness to the fear ratio we secure a multiple correlation of .51; and when we add expressiveness to the fear ratio the multiple correlation is .42. If we make a composite score by subtracting the steadiness rating from the rating on expressiveness, we find that the composite score (expressiveness minus steadiness) correlates with pleasingness to the extent of .58. Adding the composite score to the fear ratio in a multiple correlation, we get .63.

This combination becomes of considerable value. The fear ratio can easily be secured by means of the author's revision of the Pressey

X-O test; expressiveness and steadiness are not hard for any individual to estimate. And so with these three characteristics we are able to predict with fair probability of accuracy the extent to which an individual is likely to be pleasing to his fellows.

Now let us consider the second group of men, on whom we have a record of the above at least partially satisfactory measures, and, in addition, another score which will prove of value. In a study already reported (2) it was found that social intelligence, as measured by the George Washington University Test of Social Intelligence, correlated with pleasingness to the extent of .32. The score on social intelligence will be used in multiple correlations with the second group.

The fear ratio holds up with the second group, since we get a correlation of $-.25$ with pleasingness.

But when we consider the percentage of individuals with a fear ratio of less than 40 who are rated 6 or more on pleasingness, we find that the tendency is more marked with the second group than with the first, since with the second group 92% of those with a fear ratio less than 40 have a pleasingness rating of 6 or more on a scale of 10. Here the chances are about 9 to 1 instead of a little more than 4 to 1 as with the first group.

The raw eta of fear ratio on pleasingness with the second group is .44, although it is much reduced when corrected by Pearson's formula, and also shows linearity when Blakeman's test is applied; but again this situation is possibly due to the fact that there are so few cases.

If we combine social intelligence and fear ratio in a composite score, by transmuting the raw scores into step scores determined by a distribution of about 20 steps, and subtract the fear ratio, in terms of steps, from the social intelligence score, in terms of steps, we get a correlation with pleasingness of .39. Here a fairly definite and reliable tendency seems to be shown; and consequently pleasingness of personality may be experimentally studied along the lines of social intelligence and fear ratio.

The composite score of expressiveness minus steadiness correlates with pleasingness in the second group to the extent of .59. When we add to this in a multiple correlation the composite score of social intelligence minus fear ratio, we raise the correlation to .64, a sizeable correlation that could be used for purposes of prediction.

We may conclude, then, that if an individual's fear ratio is low,

if his social intelligence is high, if he is expressive and emotionally steady, that individual will have a pleasing personality. This conclusion, however, so far as this study goes, is applicable only to college men.

At this point we wish to return to the question of reliability. The reliability coefficient of the fear ratio is only .21. On the basis of our usual notions of the importance of reliability, we would have to conclude that the fear ratio could not possibly be used as a measure of pleasingness, nor of anything else. Yet we cannot dispose of it so readily as that in the face of the fact that the fear ratio secured from the *first* administration of the test holds valid as a tendency with two independent groups of men; and that in both cases the chances are better than 4 to 1 that an individual with a fear ratio of less than 40 has a relatively pleasing personality. Also, although the correlation between pleasingness and the fear ratio secured from the second administration of the test with the first group is only —.08, of some importance as a factor to be considered is the fact that with the second test of the first group the chances are 3 to 1 that an individual with a fear ratio of less than 40 will have a personality rating of 6 or better on a scale of 10, as shown in Table 2.

TABLE 2
SHOWING THE DISTRIBUTION OF FEAR RATIOS AMONG THOSE MEN WITH RATINGS
ON PLEASINGNESS ABOVE AND BELOW 6
Second test

		Pleasingness	
		0—5.9	6.0—10
Fear ratio	50—	14	12
	45—49	10	12
	40—44	3	11
	—39	4	12

It is a well-known fact that the response to an emotion-producing stimulus is quite likely to be considerably changed upon repetition of the stimulus; and not infrequently the response is reduced in intensity, if not entirely absent, when the subject realizes more fully the real nature of the stimulus and the stimulus situation. It may very well be that *consistent* validity is adequate proof of satisfactory reliability of the *first* application of a measure.

So, although the reliability of the fear ratio upon retest is not

satisfactory, it may, nevertheless, be maintained that a consistent fear ratio opens up a field of research and experimentation that may in the future yield valuable results and increase our knowledge of the psychology of personality and emotion.

Expressiveness. Besides the correlation of .30 between expressiveness and the index of variability on Part A, other correlations with expressiveness seemed worthy of consideration. When, however, they were figured for the second group, none of them held up. We must conclude, then, that this investigation does not show the revised Pressey test to be a measure or indicator of emotional expressiveness.

Steadiness. The highest correlation secured between steadiness and any of the 22 scores used is with score XV B, the total number of deviations toward the plus side of the scale in blameworthy-praiseworthy responses; a correlation of .28. The next best correlation is .23 with the fear ratio.

It must be remembered in interpreting these correlations that a high steadiness score means that the individual is considered unsteady by his fellows.

Combining the fear ratio with score XV B in a multiple correlation we get .29, an insignificant change from the simple correlation of .28. Combining XV B and the Colgate Schedule C 2, Laird's test of introversion-extroversion, we get a multiple correlation with steadiness of .34, so that there seems to be a tendency for introverts with a large deviation toward the plus side of the scale on blameworthy-praiseworthy responses to be unsteady in their emotional responses. Combining the fear ratio and the Laird test we secure a multiple of .31; introverts with a high fear ratio show a tendency toward unsteadiness. Combining in a multiple the fear ratio and expressiveness the correlation becomes .34, showing a tendency for expressive individuals with a high fear ratio to be unsteady.

Other combinations were tried in multiple correlations but no increases in correlation worthy of note were obtained.

Checking these simple and multiple correlations with the second group we find that score XV B correlates with steadiness to the extent of —.08, so that we must eliminate score XV B from further consideration. Steadiness and the Laird test with the second group correlate only to the extent of .07, so that multiples in which the Laird test is used as a component yield no significantly higher correlations.

With the second group the simple correlation between steadiness and the fear ratio is .25, two points higher than with the first group. Combining the fear ratio and expressiveness, the multiple becomes .38, 4 points higher than with the first group.

Consequently, we may conclude from this study of steadiness and emotion that a man with a high fear ratio who is also expressive shows a tendency toward unsteadiness in his emotional responses.

Adjustment. With the first group the correlation between adjustment and the fear ratio is $-.17$. The simple correlation between adjustment and expressiveness is .60. When the fear ratio and expressiveness are combined the multiple correlation becomes .63.

The best simple correlation secured between adjustment and any of the other scores on the test is .25, with score IV B which indicates the preponderance of negative responses on the blameworthy-praiseworthy part of the test. When score IV B is combined with expressiveness the multiple becomes .67, high enough for fair prediction and indicating that the expressive individual who shows a preponderance of negative responses on Part B of the revised Pressey test is rather well adjusted socially.

Checking these results with the second group of men, we find that adjustment and the fear ratio correlate only to the extent of $-.04$, so that it would have no influence upon a multiple correlation when combined with expressiveness. The simple correlation between score IV B and adjustment with the second group is .12. The simple correlation between adjustment and expressiveness is .39. When IV B and expressiveness are combined the multiple correlation becomes .41. Obviously, we must modify our previous conclusion about prediction and claim only that an expressive man who shows a preponderance of negative (or blameworthy) responses on the blameworthy-praiseworthy part of the test tends to be well adjusted, although the factor contained in the test is of little probable value in arriving at the conclusion.

CONCLUSIONS

Before summarizing and stating the main conclusions of this study we wish to pose the question: Of how much importance is statistical reliability upon retest in the face of consistent validity of the first administration of a test?

The main findings with respect to personality are as follows:

1. The chances are 4 to 1 or better that a college man with a

fear ratio of less than 40, as calculated from the author's revision of the Pressey X-O Test for Investigating the Emotions, will have a rating on pleasingness of personality of 6 or more on a scale of 10.

2. A large part of pleasingness of personality consists of emotional expressiveness, emotional steadiness, a low fear ratio as calculated from the author's revision of the Pressey X-O Test for Investigating the Emotions, and a high social intelligence as indicated by the George Washington University Test of Social Intelligence. This is indicated by a multiple correlation of .64.

3. The social intelligence score, in terms of steps, minus the fear ratio, in terms of steps, correlates with pleasingness to the extent of .39, indicating a definite tendency for those men with high social intelligence and low fear ratio to have a pleasing personality.

4. There is enough indication that the relationship between pleasingness and the fear ratio is curvilinear to warrant further investigation with four or five hundred male subjects.

5. The author's revision of the Pressey test does not appear to measure emotional expressiveness.

6. A college man with a high fear ratio who is also expressive tends toward emotional unsteadiness. The multiple correlation is .38 with one group of men, and .34 with another group.

7. An expressive college man who checks a preponderance of blameworthy responses on Part B of the author's revision of the Pressey test tends to be socially well adjusted; that is, tends to fit in well with various types of social groups. The multiple correlations are .67 and .41.

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445 Riverside Drive
New York City

LA PERSONNALITÉ ET LES ÉMOTIONS DES HOMMES

(Résumé)

Les critères de la personnalité ont été des évaluations de l'amabilité, de la stabilité émotive, de la force d'expression, et de l'adaptation sociale.

On a obtenu les mesures de la réponse émotive au moyen d'une révision du test XO de Pressey composé de trois parties: A—les réponses agréables-désagréables; B—les réponses blâmables-louables; C—les réponses peureuses-joyeuses. On a essayé plus de trente résultats. Seulement deux s'en sont montrés significatifs;—la prépondérance des réponses blâmables sur les louables dans la partie B, et une "proportion de peur" obtenue en divisant les sigma de l'intensité dans la partie C par la somme des sigmas des intensités dans les parties A et B.

Les sujets ont été deux groupes de quatre-vingt-neuf et de soixante-dix-huit étudiants universitaires.

Résultats principaux. Les probabilités sont quatre sur un chez un groupe et neuf sur un chez le second groupe qu'un étudiant universitaire qui a une proportion de peur de moins de quarante aura une évaluation d'amabilité de six ou plus sur une échelle de dix.

Une personnalité aimable se compose surtout d'une force d'expression émotive, de la stabilité, d'une proportion de peur moins élevée et d'une haute intelligence sociale. La corrélation multiple est de 0,64.

Les corrélations multiples entre la stabilité émotive comme critère, et la proportion de peur plus la force d'expression sont de 0,38 et 0,34.

Les corrélations multiples entre l'adaptation sociale comme critère, et la force d'expression plus la prépondérance des réponses blâmables sur les réponses louables dans la partie B du test révisé sont de 0,67 et 0,41.

FLEMMING

DIE MÄNNLICHE PERSÖNLICHKEIT UND MÄNNLICHE GEMÜTSBEWEGUNGEN

(Referat)

Die Kriterien der Persönlichkeit bestanden aus Rangordnungen [ratings] in Bezug auf Annehmlichkeit [pleasingness], affektiver Beständigkeit, Ausdrücklichkeit [expressiveness], und sozialer Anpassungsfähigkeit.

Die Messungen der affektiven Reaktion wurden mit einer Revision des Pressey X O Tests erhalten, die aus drei Teilen bestand: (A) Angenehm-unangenehme Reaktionen; (B) tadelnswerte-lobenswerte Reaktionen; (C) angstliche-freudige Reaktionen. Es wurden über 30 Berechnungen [scores] versucht. Nur zwei erwiesen sich als irgendwie bedeutungsvoll,—nämlich eine Vorwiegung der tadelnswerten über die lobenswerten Reaktionen im Teil B, und ein "Angstverhältniss" [fear ratio], welches dadurch erhalten wurde, dass man die Sigma der Intensität aus Teil C durch die Summa der Sigmen der Intensitäten aus den Teilen A und B dividierte.

Als Versuchspersonen dienten zwei Gruppen von respektiv 89 und 78 Studenten.

Hauptbefunde. In der einen Gruppe wird in vier Fällen aus fünf [the chances are four to one with one group], und in der anderen Gruppe in neun Fällen aus zehn, eine Student dessen "Angstverhältniss" unter 40 liegt

in Bezug auf Annehmlichkeit 6 oder mehr aus möglichen 10 Punkten erzielen [will have a rating on pleasingness of 6 or more on a scale of 10].

Annehmlichkeit der Persönlichkeit besteht grossenteils aus affektiver Ausdrücklichkeit, Beständigkeit, einem niedrigen "Angstverhältniss" und einer hohen sozialen Intelligenz. Die multiple Korrelation beträgt .64.

Die Korrelationen zweiten Ranges [multiple correlations] zwischen der affektiven Beständigkeit (als Kriterium verwendet) und dem Angstverhältniss plus Ausdrücklichkeit betragen .38 und .34.

Die Korrelationen zweiten Ranges zwischen der sozialen Anpassung (als Kriterium verwendet) und Ausdrücklichkeit plus Vorwiegung der tadelnswerten über die lobenswerten Reaktion im Teil B des rividierten Tests betragen .67 und .41.

FLEMMING

GROUP PREDICTIONS OF FUTURE EVENTS*

From the Psychological Laboratory of the University of Maine

NATHAN ISRAELI

Predictions of future events by non-experts are usually looked upon as blind guesses without any real importance. This paper will report on an experiment in which predictions of social, political, and scientific events were made by several groups of students. Comparisons are made of the guesses of the groups. The purpose of the experiment is to discover something about the nature of these predictions. An analysis of group predictions may throw light on the *behavior of individuals with respect to the future*, and on the origin and makeup of notions of the future.

This experiment is one of the first in a series of eight experiments conducted at the University of Maine in 1930-1931.¹ Several groups of students made a series of qualitative and quantitative judgments about future events. These judgments represent students' notions of, attitudes to, and wishes concerning the future. All this experimentation originated in a comprehensive program formulated by the present writer in 1930 in a paper entitled "Some Aspects of the Social Psychology of Futurism."² That program sketched outlines of a "*futuristic*" psychology. A theory of social futurism was included. It is a reflection of the modern tendencies to scan and plan for the future.

It may be possible to organize the data of these and related experiments as a basis for an empirical description of the psychology of futuristic behavior.

*Recommended for publication by G. Murphy, accepted by Carl Murchison of the Editorial Board, and received in the Editorial Office, December 22, 1931.

¹For courtesies extended him in the conduct of this series of experiments, the present writer wishes to acknowledge his indebtedness to Professor C. A. Dickinson, Head of the Department of Psychology, and to his former colleagues at the University of Maine. He also wishes to express here his appreciation of the interest of Professor Gardner Murphy, Columbia University, in this work.

²See the second reference at the end of this paper.

THE EXPERIMENT

In this experiment, predictions were made about ten different future events. The subject was instructed, as can be seen in the following experiment-form, to underline the item most certain to him. In two questions, he selected from a series of dates the most likely one; in the fourth question, the most likely dates; and in seven questions, he selected from a given series of items that item which appeared to him most probable. This means that, in some cases, he set the date of a future development, and, in others, pointed definitely to the most probable stage of development, or to the outcome, of a given situation at a stated future period.

Look each question over very carefully and follow directions. To complete these sentences you should check that particular item which seems most certain to you. Thus, to answer the first question you should ask yourself as to how far ahead the weather can be predicted. To answer the second question, you should ask yourself as to when you think America will join the League of Nations.

1. The weather can be predicted ahead of time

1 second	30 seconds	1 minute	15 minutes	30 minutes
45 minutes	1 hour	4 hours	8 hours	12 hours
16 hours	20 hours	24 hours		

2. America will join the League of Nations in

1931	1941	1951	1961	1971	1981	1991
1932	1942	1952	1962	1972	1982	1992
1933	1943	1953	1963	1973	1983	1993
1934	1944	1954	1964	1974	1984	1994
1935	1945	1955	1965	1975	1985	1995
1936	1946	1956	1966	1976	1986	1996
1937	1947	1957	1967	1977	1987	1997
1938	1948	1958	1968	1978	1988	1998
1939	1949	1959	1969	1979	1989	1999
1940	1950	1960	1970	1980	1990	2000

3. Babe Ruth will hit 10 home runs in 1931

20
30
40
50
60
70
80
90
100

4. The Democrats will win in the Maine State Elections in the following years:

1932	1946	1960	1974	1988
1934	1948	1962	1976	1990
1936	1950	1964	1978	1992
1938	1952	1966	1980	1994
1940	1954	1968	1982	1996
1942	1956	1970	1984	1998
1944	1958	1972	1986	2000

5. The cure for cancer will be discovered in

1931	1941	1951	1961	1971	1981	1991
1932	1942	1952	1962	1972	1982	1992
1933	1943	1953	1963	1973	1983	1993
1934	1944	1954	1964	1974	1984	1994
1935	1945	1955	1965	1975	1985	1995
1936	1946	1956	1966	1976	1986	1996
1937	1947	1957	1967	1977	1987	1997
1938	1948	1958	1968	1978	1988	1998
1939	1949	1959	1969	1979	1989	1999
1940	1950	1960	1970	1980	1990	2000

6. In 2000 (at the end of this century) the speed-record of airplanes will be

400 miles per hour	2,300 miles per hour
500 " " "	2,400 " " "
600 " " "	2,500 " " "
700 " " "	2,600 " " "
800 " " "	2,700 " " "
900 " " "	2,800 " " "
1,000 " " "	2,900 " " "
1,100 " " "	3,000 " " "
1,200 " " "	3,100 " " "
1,300 " " "	3,200 " " "
1,400 " " "	3,300 " " "
1,500 " " "	3,400 " " "
1,600 " " "	3,500 " " "
1,700 " " "	3,600 " " "
1,800 " " "	3,700 " " "
1,900 " " "	3,800 " " "
2,000 " " "	3,900 " " "
2,100 " " "	4,000 " " "
2,200 " " "	5,000 " " "

7. The population of the United States in the year 2000 will be

10,000,000
50,000,000
100,000,000
150,000,000
200,000,000
250,000,000
300,000,000
350,000,000
400,000,000
450,000,000
500,000,000

8. The population of Maine in the year 2000 will be

100,000	2,000,000
500,000	2,500,000
1,000,000	3,000,000
1,500,000	3,500,000

9. In 3000 (more than a thousand years from now) the population of the world will be

0
100
1,000
1,000,000
100,000,000
1,000,000,000
100,000,000,000
1,000,000,000,000
100,000,000,000,000
1,000,000,000,000,000

10. In 3000 (more than a thousand years from now) the average span of life will be

Years

						330
.5	55	110	165	220	275	335
1.5	60	115	170	225	280	340
10	65	120	175	230	285	345
15	70	125	180	235	290	350
20	75	130	185	240	295	355
25	80	135	190	245	300	360
30	85	140	195	250	305	365
35	90	145	200	255	310	370
40	95	150	205	260	315	375
45	100	155	210	265	320	380
50	105	160	215	270	325	385

All entering freshmen and general psychology students, mostly sophomores, at the University of Maine, were subjects in the experiment in September, 1930.³ There were 607 subjects, divided into nine different groups, five freshman and four sophomore groups. The freshman groups were made up as follows: (1) 79 men and (2) 81 women of the College of Arts and Sciences; (3) 59 men and (4) 29 women of the College of Agriculture; and (5) 177 men of the College of Technology. In the upperclass groups, there were 37 Psychology-I, 40 Psychology-II, 31 Psychology-III, and 74 Psychology-IV men and women. These groups will be referred to in the tables as Freshman Groups I-V and Sophomore Groups I-IV. In Figure 1 there is a legend which applies to all the graphs here.

TREATMENT OF THE DATA

In the analysis of the data, raw frequencies were converted into percentages of those answering questions, since occasionally a subject

³This experiment was given together with Experiments I and II, which were reported upon elsewhere.

FRESHMAN GROUPS	SOPHOMORE GROUPS
Arts & Sciences - Men	Psychology-I
Arts & Sciences - Women	Psychology-II
Agriculture - Men	Psychology-III
Agriculture - Women	Psychology-IV
Technology - Men	

FIGURE 1

LEGEND OF GRAPHS—EXPLANATION OF LINES USED IN THE GRAPHS

The five freshman groups are represented as follows: solid line, men of the College of Arts and Sciences; dash line, women of the College of Arts and Sciences; dot-and-dash line, men of the College of Agriculture; crossed solid line, women of the College of Agriculture; fine dash line, men of the College of Technology. The four sophomore groups are represented similarly: solid line, Psychology-I; dash line, Psychology-II; dot-and-dash line, Psychology-III; cross solid line, Psychology-IV.

did not answer one or more questions. To find standard deviations and averages for the data of Questions 2, 3, and 5, the short method was used. Cumulative frequency curves were plotted and the median Q_1 and Q_3 were estimated from these graphs for Questions 6, 7, 8, and 10. Question 1 is but briefly considered. Distribution curves are plotted for the data of Question 4, in which case none or any number of items could have been underlined. In the distribution curves plotted for Question 8, the abscissa units are in geometric progression. The original distribution tables are not included here, although, in most instances, the frequencies are graphically shown.⁴

RESULTS

In general, there is a parallelism of percentage estimate distributions of the group predictions. Uniformity in distribution of estimates is clearly shown by comparison of these distributions, and of the averages, standard deviations, quartiles, or medians of the various groups. The results will be presented in the order of the questions, except that the second will be included with the fifth question.

Question 1: Prediction of the Weather. According to most of

⁴Graphs included in this paper are incomplete. A preliminary treatment of the data, however, included a series of complete ordinary distribution and cumulative frequency distribution curves for the various questions. All those curves graphically indicated uniformity in the distribution of estimates of the various groups.

the subjects, the weather can be predicted 24 hours ahead of time. This question suggests a measurement of opinion about the effectiveness of expert prediction, especially as to the upper limits of prediction.

Question 3: Home Runs in 1931 by Babe Ruth. A comparison between prediction and actual outcome of an event can be made in this question. Babe Ruth's 1931 home-run record was predicted by the five freshman groups as follows: 47.1, 49.9, 49.6, 47.8, 47.9; and by the four sophomore groups as 53.6, 42.8, 40.7, 44.3. These 1930 predictions can be compared with actual number of home runs Babe Ruth hit in the 1931 season. He hit 46 home runs in that year. This figure is rather closely approximated by the general average estimate of the freshman groups, 48.5, and by that of the sophomore groups, 45.4. In this case, a common background may be traced to a continuous publicity given the career of this athlete. To be sure, the distribution curves of the percentage estimates in this question resemble pure chance curves, with guesses ranging from the first stated item, 10, to the last stated item, 100, of a given series of numbers, and with the heaviest frequency around the middle.

Similar distributions of the percentage estimates of different groups are shown in Figure 2. Each group has the same spread of guesses, and the same individual differences in the percentage estimates. See Table 1.

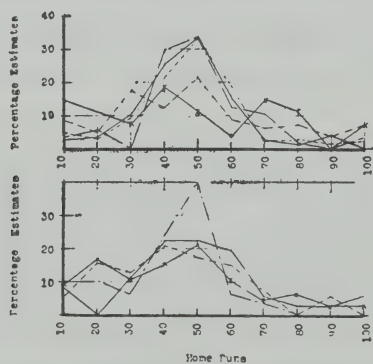


FIGURE 2

PREDICTION OF THE 1931 RECORD OF BABE RUTH

Percentage of groups of freshmen estimating the number of home runs Babe Ruth would hit in 1931, upper graph; percentages of sophomore groups, lower graph. For interpretation of lines, see legend of the graphs, Figure 1.

TABLE 1

AVERAGES AND STANDARD DEVIATIONS OF ESTIMATES OF INDIVIDUAL FRESHMAN AND SOPHOMORE GROUPS OF BABE RUTH'S 1931 RECORD

Group	Average		Standard deviation	
	Freshman	Sophomore	Freshman	Sophomore
I	47.1	53.6	15.3	26.2
II	49.9	42.8	25.0	20.5
III	49.6	40.7	17.1	15.3
IV	47.8	44.3	27.0	23.0
V	47.9		17.2	
General average	48.5	45.4	20.3	21.3

Question 4: Democrats and the Maine State Elections. Most of the individuals predicted no Democratic victories in biennial state elections in Maine during the Twentieth Century. According to the general averages of the groups, no more than 12.5% of the freshmen and no more than 10.3% of the sophomores predicted a Democratic victory during the rest of this century. Maximum percentages obtained for Democratic victories during this future period show that the chances of the Republicans are guessed to be least at present and at the end of the century. These highest percentages are, according to the freshman groups: 22.8 (year 2000), 24.7 (1938-1940), 32.2 (2000), 27.6 (2000), and 38.0 (2000); and, according to the sophomore groups: 27 (1936), 22.5 (1932), 29.0 (1940), 30.4 (1936). Figures 3 and 4 show parallel distributions of the percentage estimates of the various groups compared to one another.

Maine is traditionally a Republican state and the results merely show that the men and women at the University of Maine see no reason why the *status quo* should change. It is to be pointed out that the results obtained in response to this question are pertinent to this question only in its present forms. A controlled experiment may lead to a better picture of the chance of the Democrats in Maine.

Questions 2 and 5: Similar Predictions of Two Different Events. A common characteristic of the group predictions is the similarity in the distributions of the percentage estimates of the various groups. An interesting similarity is found in the predictions of two different events. In the second question, the subject underlined any year from 1931 through 2000 to indicate that year in which, according

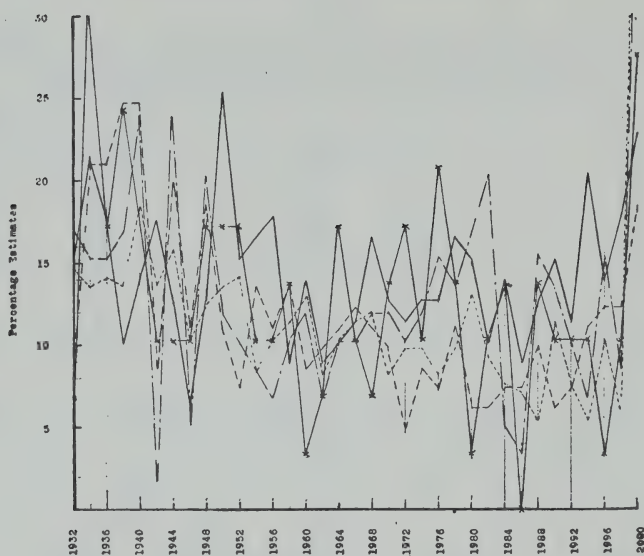


FIGURE 3

BIENNIAL MAINE STATE ELECTIONS

Freshman groups' percentage estimates of the years of Democratic victories during 1932-2000.

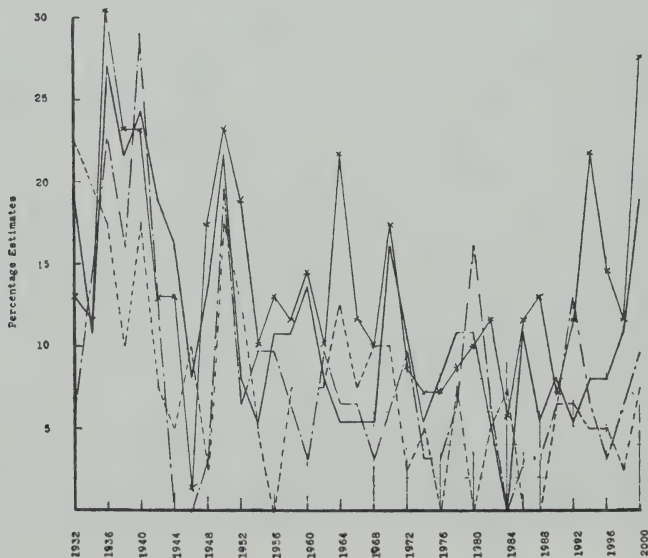


FIGURE 4

BIENNIAL MAINE STATE ELECTIONS

Sophomore groups' percentage estimates of Democratic victories during 1932-2000.

TABLE 2

AVERAGES AND STANDARD DEVIATIONS OF ESTIMATES BY DIFFERENT FRESHMAN AND SOPHOMORE GROUPS OF THE YEAR AMERICA WILL JOIN THE LEAGUE OF NATIONS

Group	Average		Standard deviation	
	Freshman	Sophomore	Freshman	Sophomore
I	1946.4	1948.1	18.8	14.2
II	1946.5	1946.6	17.0	13.6
III	1953.1	1941.6	22.1	7.8
IV	1946.9	1945.3	17.2	18.0
V	1954.7		22.3	
General average	1949.5	1945.4	19.5	13.4

TABLE 3

AVERAGES AND STANDARD DEVIATIONS OF ESTIMATES BY DIFFERENT FRESHMAN AND SOPHOMORE GROUPS OF THE YEAR IN WHICH THE CURE FOR CANCER WILL BE DISCOVERED

Group	Average		Standard deviation	
	Freshman	Sophomore	Freshman	Sophomore
I	1946.5	1942.6	16.8	10.4
II	1945.8	1946.7	14.0	14.1
III	1948.8	1945.7	17.6	11.9
IV	1944.6	1947.6	14.5	15.6
V	1946.6		13.5	
General average	1946.5	1945.7	15.3	13.0

to his judgment, America will join the League of Nations. In the fifth question, he also underlined any year in the series from 1931 through 2000 to indicate when he thought the cure for cancer will most probably be discovered. Not only is the plan of construction of these two questions identical, but the answers are very much alike. All groups predicted that America will join the League by 1955, and that the cure for cancer will be discovered by 1949. The League entry date of the freshman groups, according to the general average, is 1949.5, and of the sophomore groups, 1945.4; the cancer discovery date of the freshman groups, 1946.5, and of the sophomore groups, 1945.7. Averages of the sophomores are almost the same for the two different questions.

A comparison of averages and deviations in Table 2 will show a similarity of estimates of the various groups for the date of the

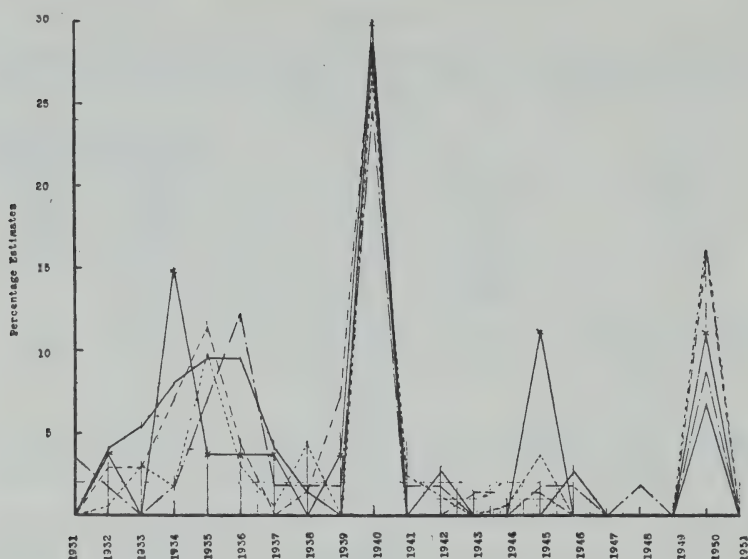


FIGURE 5

U. S. ENTRY INTO THE LEAGUE OF NATIONS

Freshman groups' percentage estimates of the year of entry of the United States into the League of Nations.

entry of the League by our country; and an analysis of the data in Table 3 will point to a parallelism of estimates for the year of the discovery of a cure for cancer. In all instances, there is a parallelism, or a similarity of the group predictions. In Figures 5, 6, 7, and 8, the frequency distribution curves graphically demonstrate this parallelism of group predictions in both questions.

This may be a purely coincidental similarity.⁵ Perhaps the subjects tended to underline the same item, without any thought, in both cases. Or they may have believed that the probability of the occurrence at some future time of the two events is about the same, that the chances for the discovery within the Twentieth Century of a cure for cancer are even with the chances for America's joining the

⁵Percentage estimates in both questions are clustered about the 'fives' and 'tens' between 1935 and 1950. This may account partly for the similarity in the answers to the second and fifth questions. Preference for certain numbers in 'units' and 'tens' was treated of by J. E. Coover (1). He showed how this preference comes in guesswork as well as in estimates of objective measurements.

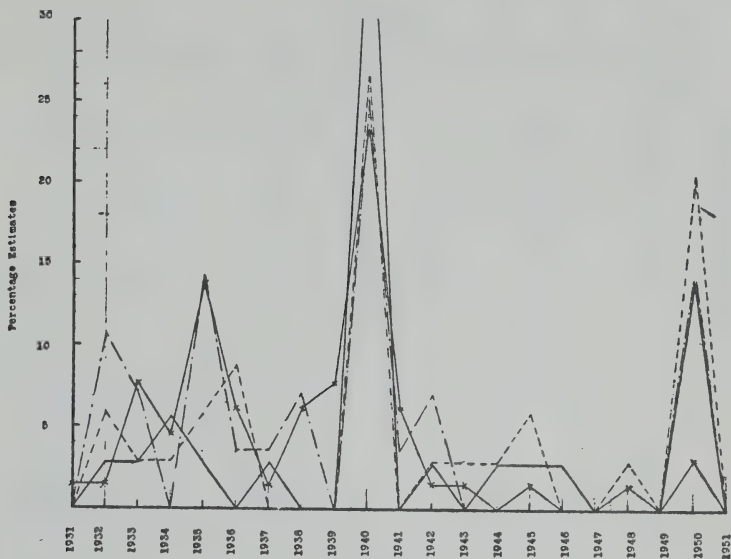


FIGURE 6

U. S. ENTRY INTO THE LEAGUE OF NATIONS

Sophomore groups' percentage estimates of the year of entry of the United States into the League of Nations.

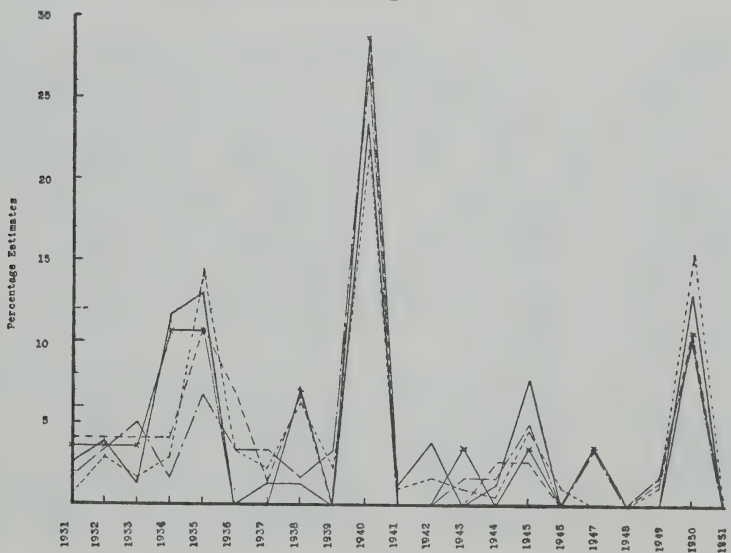


FIGURE 7

CANCER CURE DISCOVERY

Freshman groups' percentage estimates of the year of discovery of the cure for cancer.

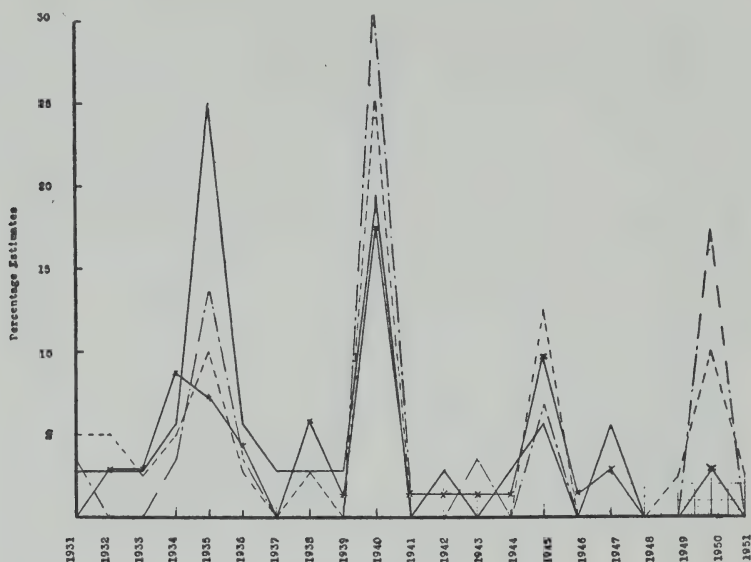


FIGURE 8

CANCER CURE DISCOVERY

Percentage estimates of the sophomore groups.

League of Nations, that the time element in the events is almost identical.

Although at the time this experiment was made, in 1930, entry by this country into the League seemed most unlikely in the immediate future, since it had been considered then a dead political issue, the subjects apparently believed that within the next 25 years the United States is bound to enter it. That at least 20 years or so is judged to be between ourselves and the time when someone will discover the cure for cancer apparently shows that the subjects believed that medical science is still groping in the dark, but will finally reach its objective.

Question 6: Speed of Airplanes. Judged in the light of recent aeronautic developments, the subjects were not over-sanguine in their estimates of the speed of airplanes at the end of this century. According to the general average estimates of the middle 50% of the freshman groups, and, similarly, according to those of the sophomore groups, the speed of airplanes in the year 2000 will be respectively

TABLE 4
FUTURE SPEED OF AIRPLANES—DATA DERIVED FROM FIGURE 9

Group	Freshman			Sophomore		
	Median	Q ₁	Q ₃	Median	Q ₁	Q ₃
I	829	465	991	688	489	789
II	796	498	957	749	482	925
III	690	460	948	908	458	998
IV	939	762	998	869	510	994
V	940	678	1470			
General average	838.8	572.6	1072.8	803.5	484.8	926.5

between 572.6 and 1072.8 miles per hours, 484.8 and 926.5 miles per hour. See Table 4 and Figure 9.

Population Predictions

Question 7: U. S. population at end of the century. The population of this country is expected to increase to more than twice what it now is. Estimates of the different freshman groups are similar to each other as well as to those of the sophomore groups. This can be seen from a comparison of the cumulative frequencies in Figure 10, and also from the data of Table 5.

TABLE 5
ESTIMATES OF THE POPULATION OF THIS COUNTRY AT END OF THE CENTURY—
DATA DERIVED FROM FIGURE 10

	Median	Q ₁	Q ₃
Freshman group			
I	233,000,000	158,000,000	371,000,000
II	317,000,000	138,500,000	391,000,000
III	232,000,000	152,000,000	365,000,000
IV	346,000,000	183,000,000	464,000,000
V	277,000,000	182,000,000	392,000,000
General average	281,000,000	162,700,000	396,600,000
Sophomore group			
I	246,000,000	177,000,000	354,000,000
II	258,000,000	137,500,000	369,000,000
III	358,000,000	172,000,000	454,000,000
IV	285,000,000	186,000,000	412,000,000
General average	286,750,000	168,125,000	397,250,000

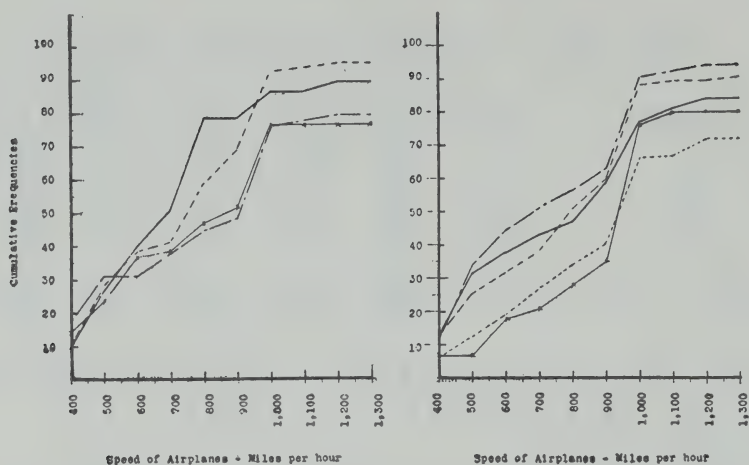


FIGURE 9

SPEED OF AIRPLANES AT THE END OF THIS CENTURY

Ogive curves graphically representing the cumulative frequencies of the percentage of sophomore groups (left) and of freshman groups (right) which estimated the speed of airplanes in the year 2000 between 400 and 1300 miles per hour.

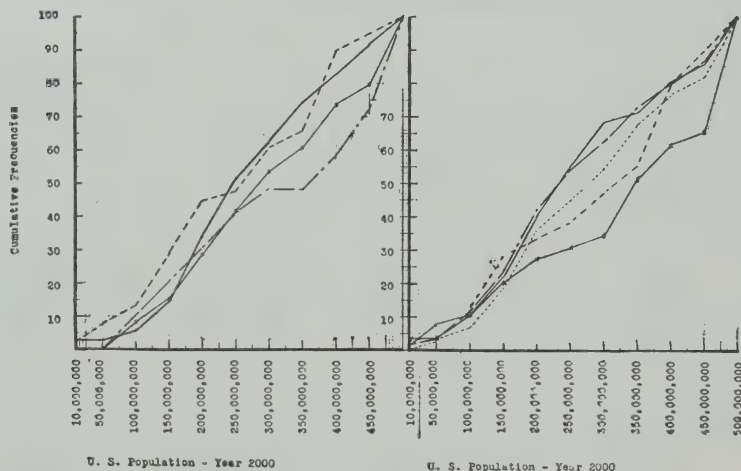


FIGURE 10

POPULATION OF THE UNITED STATES AT THE END OF THIS CENTURY

Cumulative frequency percentage estimates of sophomore groups (left) and of freshman groups (right).

TABLE 6

ESTIMATES OF POPULATION OF MAINE IN THE YEAR 2000—DATA DERIVED FROM FIGURES 11 AND 12

	Median	Q ₁	Q ₃
Freshman group			
I	987,500	590,000	1,825,000
II	1,060,000	518,000	1,750,000
III	1,550,000	858,000	2,340,000
IV	1,060,000	562,500	1,450,000
V	1,550,000	837,500	2,375,000
General average	1,241,500	673,200	1,948,000
Sophomore group			
I	1,025,000	587,500	1,470,000
II	1,533,000	580,000	2,020,000
III	1,712,500	1,127,000	2,180,000
IV	1,417,000	730,000	1,922,000
General average	1,421,875	756,125	1,898,000

Question 8: Maine population at end of the century. Predictions of the future population of Maine were apparently more conservative than predictions of the future population of the entire nation. Ratios of Q₁, Q₃, and median estimates of the future U. S. population to its actual size exceed ratios of Q₁, Q₃, and median estimates of the future Maine population to its actual size.

Cumulative frequencies are graphically represented in Figures 11 and 12 and are the basis of the data in Table 6.

Question 9: World population in the year 3000. Some individuals believed that in more than a thousand years from now the

TABLE 7

ESTIMATES OF LIFE-SPAN IN THE YEAR 3000 ACCORDING TO DATA DERIVED FROM FIGURES 14 AND 15

Group	Freshman			Sophomore		
	Median	Q ₁	Q ₃	Median	Q ₁	Q ₃
I	59.5	47.1	96.0	62.5	49.2	87.0
II	76.0	61.9	88.7	65.0	52.5	80.0
III	64.0	48.2	84.0	77.0	49.0	87.0
IV	88.3	75.0	115.0	77.5	59.0	98.0
V	67.7	47.3	96.0			
General average	71.1	55.9	95.9	70.5	52.4	88.0

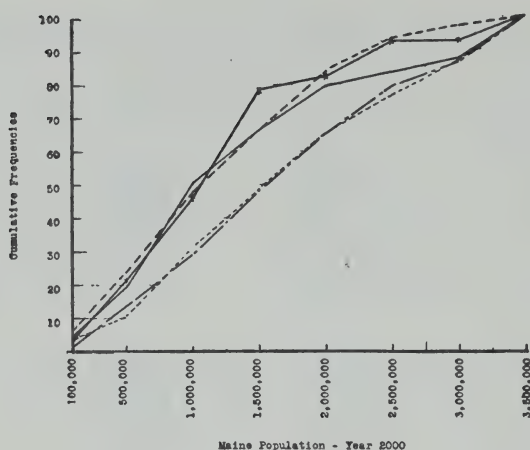


FIGURE 11

POPULATION OF MAINE AT THE END OF THIS CENTURY

Cumulative frequency percentage estimates of freshman groups.

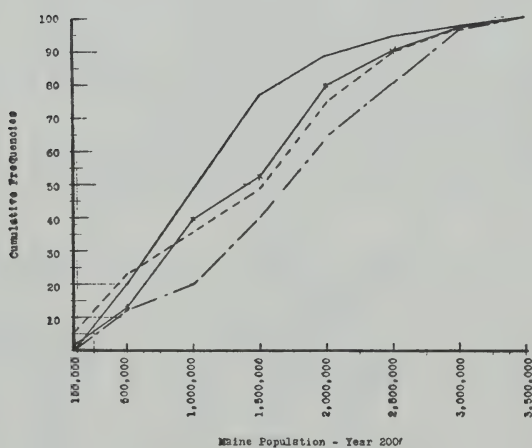


FIGURE 12

POPULATION OF MAINE AT THE END OF THIS CENTURY

Cumulative frequency percentage estimates of sophomore groups.

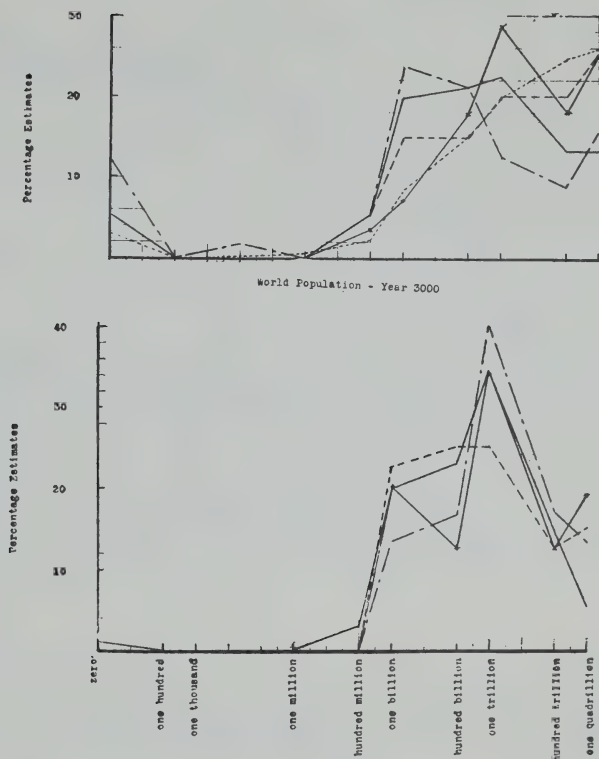


FIGURE 13

WORLD POPULATION IN THE YEAR 3000

Percentage estimates of freshman groups (upper) and of sophomore groups (lower). The abscissa units are in geometric progression.

population of the world will have completely disappeared, whereas some estimated that at that time there will probably be a quadrillion inhabitants. The estimates are plotted in the frequency distribution curves of Figure 13.

Question 10: Future Span of Life. Predictions of the span of life in the year 3000 are uniformly conservative. The general average medians of the freshman groups, 71.1 years, and of the sophomore groups, 70.5 years, do not go far beyond the present span of life. Ogive curve representations of the frequencies in Figures 14 and 15

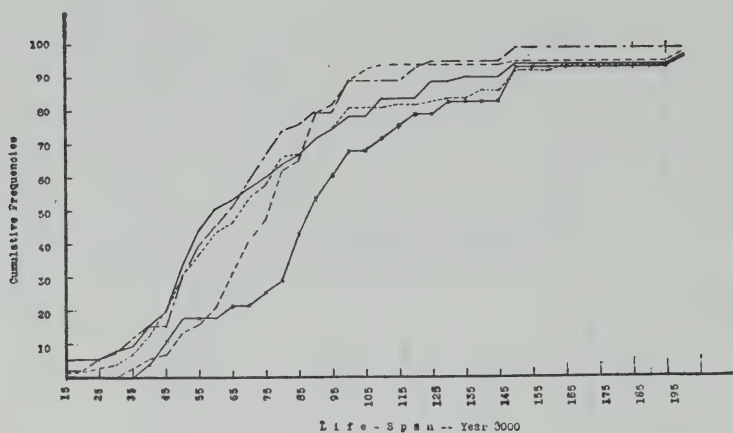


FIGURE 14

LIFE-SPAN IN THE YEAR 3000

Cumulative frequencies for freshman groups.

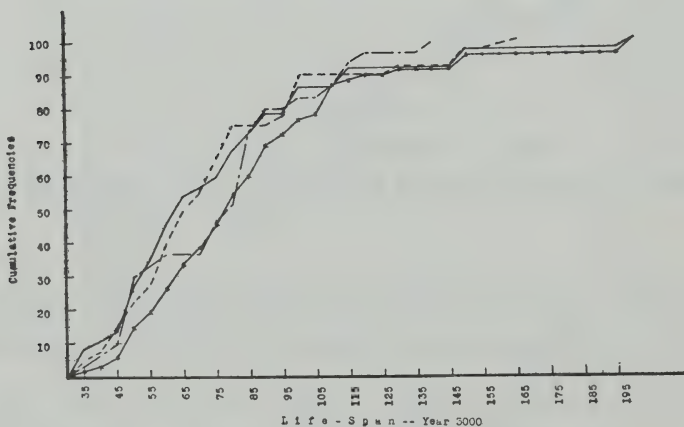


FIGURE 15

LIFE-SPAN IN THE YEAR 3000

Cumulative frequencies for sophomore groups.

are similar. Table 7 shows that the medians, Q_1 's, and Q_3 's of the distributions are also similar.

Parallel Distributions of Group Prediction of Future Events. Uniformity in predictions of future events by similar groups of non-experts is statistically indicated here by parallel distributions of the percentage estimates of various groups, by similarity in averages and standard deviations, and by similarity in quartiles and medians of the compared groups. This is shown in Table 8. This table contrasts the combined results of the five freshmen groups with the combined results of the four sophomore groups, according to the different questions. The upper half of Table 8 is evidence of a very close similarity in the average percentage estimates of the freshman and sophomore groups for Questions 2, 3, and 5 and also in the variability of the estimates. The lower half of this table points to similarity in the quartiles and medians for Questions 6, 7, 8, and 10.

In general, the distributions are roughly symmetrical. This is suggested by the forms of the distribution curves, as in the Babe Ruth predictions, and by the position of the medians approximately midway between Q_1 and Q_3 , as in Questions 6, 7, 8, and 10.

* * * * *

A psychologist may be interested not only in the utopian views of a Bellamy or of a Verne, but also in the notions of the future which various experts and specialists, as well as non-experts, may have. A psychology of the man on the street, or of the man in the

TABLE 8

COMPARISON OF THE COMBINED AVERAGES AND STANDARD DEVIATIONS FOR THE FRESHMAN AND SOPHOMORE GROUPS ACCORDING TO DIFFERENT QUESTIONS

Question	Average		Standard deviation	
	Freshmen	Sophomores	Freshmen	Sophomores
3. Home runs by Babe Ruth	48.5*	45.4	20.3	21.3
2. League of Nations entry by U. S.	1949.5†	1945.4	19.5	14.4
5. Year of discovery of cure for cancer	1946.5‡	1945.7	15.3	13.0

*From Table 1
 †From Table 2
 ‡From Table 3

TABLE 8 (*continued*)

COMPARISON OF THE COMBINED QUANTILES AND MEDIANS FOR THE FRESHMAN AND SOPHOMORE GROUPS ACCORDING TO DIFFERENT QUESTIONS

Question	Combined groups	Q ₁	Median	Q ₃
6. Speed of airplanes (miles per hour) in year 2000	Freshmen Sophomores	572.6§ 484.4	838.8 803.5	1072.8 926.5
7. U.S. population in year 2000	Freshmen Sophomores	162,700,000|| 168,125,000	281,000,000 286,750,000	396,600,000 397,250,000
8. Main population in year 2000	Freshmen Sophomores	673,100¶ 756,125	1,241,500 1,421,875	1,948,000 1,898,000
10. Life-span in year 3000	Freshmen Sophomores	55.9** 52.4	71.1 70.5	95.9 88.0

§From Table 4.

||From Table 5.

¶From Table 6.

**From Table 7.

laboratory, or of the man in the arm-chair, which omits a description of his futuristic behavior is not complete. Results of this experiment suggest a basis for understanding notions of the future of non-experts. Furthermore, imbedded in the mass of data obtained in this experiment are suggestions regarding the determination of social attitudes toward the future. Most of the students expected that the next fifty years or so will continue the progress and expansion of recent decades. In particular, they predicted airplanes travelling at a very high speed in the year 2000, uniform increases of populations, discovery of a cure for cancer, and entry of this country into the League of Nations before 1950. These predictions represent expectations and *attitude towards* the future as well as mere *reflective judgments*. To disentangle the various factors which may determine these predictions, further research is necessary.

SUMMARY AND CONCLUSIONS

In this study of predictions of future events, it was found that five freshman and four sophomore groups of University of Maine students behaved very much alike. Uniformity in the distribution of estimates in the different groups is clearly shown by comparison of

these distributions, and of the averages, standard deviations, quartiles, or medians of the various groups.

(1) The Maine students believed that the weather can be predicted at least 24 hours ahead of time. (2) Their prediction of the number of home runs to be hit in the next baseball season by Babe Ruth (1931) actually came true. (3) They were rather skeptical about the Democratic Party winning in any one particular election during the rest of this century. (4) They dated the entry of the United States into the League of Nations at about the same time in which they believed the cure for cancer will be discovered. (5) Of all the groups, the technology students were most liberal in estimation of the speed of airplanes in the year 2000. (6) All groups were rather conservative in predicting the population of Maine for the year 2000 as compared with their predictions of the population for that year of the United States. (7) In estimating the world population for the year 3000, they varied all the way from zero to a quadrillion inhabitants. (8) They were rather conservative in their judgment of the life-span in the year 3000. (9) In these, as in other respects, estimates of the future seem to be a convenient approach to the study of *social attitudes*.

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Bethlem Royal Hospital
Beckenham, Kent, England

LES PRÉDICTIONS COLLECTIFS DES ÉVÉNEMENTS FUTURS

(Résumé)

L'habitude de prédire l'avenir et celle de faire des projets pour l'avenir sont des tendances modernes. Une psychologie qui omet une description du comportement des experts à l'égard de l'avenir, et celui des non experts, est assez incomplète. Les non experts prédisent les événements futurs en conformité de leurs notions sur l'avenir et de leurs attitudes à l'égard de l'avenir. Cet article rapporte une expérience, en 1930, dans laquelle on a demandé à 607 étudiants de l'Université du Maine de remplir de certaines formes. On a appris leurs notions à l'égard des possibilités futures de dix choses différentes. Les estimations ou conjectures de ces étudiants indiquent que des progrès et des expansions en plusieurs domaines sont probables à l'avenir: les avions voleront à une vitesse beaucoup plus rapide; avant 1950, on doit maîtriser complètement le cancer; à cette date, les Etats-Unis seront membre de la Société des Nations; les populations du Maine, des Etats-Unis, et du monde continueront à s'accroître. En comparant les résultats selon les neuf différents groupes d'étudiants, on a constaté que tous les groupes ont eu la même variation des estimations ou conjectures.

ISRAELI

GRUPPENVORAUSSAGUNGEN ÜBER ZUKÜNFTIGE EREIGNISSE

(Referat)

In die Zukunft hineinzuschauen, und für die Zukunft Pläne zu machen, sind moderne Neigungen. Eine Psychologie, in der die Beschreibung der auf die Zukunft hinzielenden Tätigkeit [futuristic behavior] Sachverständiger und Nicht-Sachverständiger unterlassen wird, ist eine etwas unvollkommene. Die Prophezeiungen zukünftiger Ereignisse durch Nicht-Sachverständige stimmen mit ihren Ansichten und Einstellungen in Bezug auf die Zukunft überein. In der gegenwärtigen Arbeit wird über einen, in 1930 ausgeführten, Versuch berichtet, worin 607 Studenten der Universität des Staates Maine ersucht wurden, gewisse Protokolle auszufüllen. Ihre Ansichten über die zukünftigen Möglichkeiten [future possibilities] in Bezug auf zehn verschiedene Gelegenheiten wurden ermittelt. Die Abschätzungen oder Vermutungen dieser Studenten wiesen darauf hin, dass Fortschritte und Ausbreitung in verschiedenen Richtungen in der Zukunft zu erwarten sind: Man ist der Meinung, dass die Flugmaschinen viel schneller fliegen werden; dass vor 1950 der Krebs völlig beherrscht sein wird; dass bis dann die Vereinigten Staaten Mitglieder des Völkerbundes geworden sein werden; dass die Bevölkerung des Staates Maine, der Vereinigten Staaten, und der Welt im Zunehmen fortfahren wird, u.s.w. Durch Vergleichung der, in den neun verschiedenen Studentengruppen erhaltenen, Befunde wurde ermittelt, dass es in allen Gruppen die selbe Variierung der Abschätzungen oder Vermutungen gab.

ISRAELI

SHORT ARTICLES AND NOTES

ATTITUDE TOWARD THE TEN COMMANDMENTS*

(OPINIONS OF 148 COLLEGE STUDENTS COMPARED WITH THE OPINIONS OF 345 PRISONERS)

RAY MARS SIMPSON

This study is designed first to compare the attitude of individuals not incarcerated toward the ten commandments with the attitude of those who are imprisoned for some criminal offense. The second objective was to investigate the relative inherent importance of the ten commandments. In the third place it was believed that possibly some fundamental shift in attitude toward the ten commandments had taken place during the past three thousand years.

The technique employed in securing the data was rather simple. The ten commandments were printed in random order on separate sheets of paper with the following instructions at the top of the page:

"Number the following ten commandments in order according to their relative importance TO YOU. Number them in order from 1 to 10. Number 1 will be most important; number 2 will be next in importance. Number 10 will be the least important."

These sheets were distributed to 148 mid-west college students (85 men and 63 women); to 200 prisoners in The Illinois State Penitentiary at Joliet; to 145 boys in the Illinois State Reformatory at Pontiac; and to 31 parents. The mean age of the college students was 20.7 years with a spread in age from 17 to 57 years. The mean age of the penitentiary group was 29.8 years with a spread from 17 to 61 years. The mean age of the reformatory group was 20.3 with a spread from 16 to 26 years. These individuals rated the commandments in accordance with the above instructions.

The combined totals of ranks for each group provided the data for constructing a scale for measuring the attitude of each group toward the ten commandments. First, the "per cent position" in the series of ranks occupied by each commandment was found by using the formula:

$$\text{per cent position} = \frac{100 (R - .5)}{N}$$

*Studies from the Institute for Juvenile Research, Chicago, Paul L. Schroeder, M.D., Director, Series C, No. 215.

In the formula R is the rank of a particular commandment and N is the total number of commandments in the ranked series. Second, the per cent position in the ranked series was transmuted into scores or units of amount on an ordinary scale of 100 points by means of a table which assigned one point on the scale to each per cent position from 0 to 100. (See 1, pp.

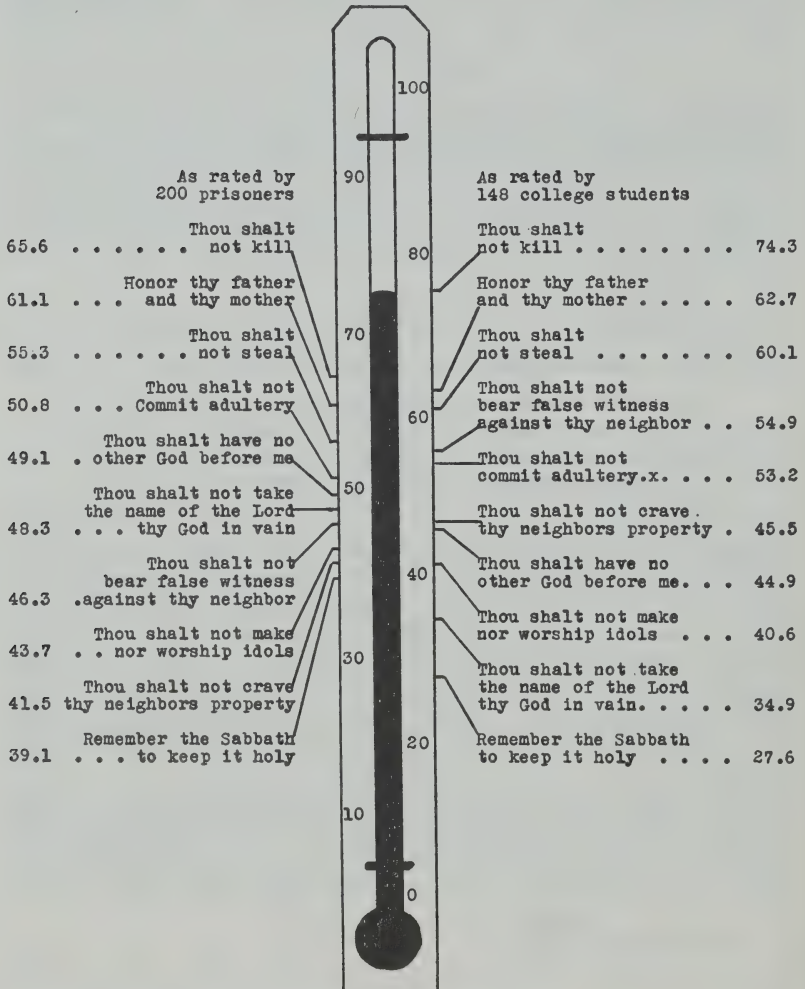


FIGURE 1
RELATIVE IMPORTANCE OF THE TEN COMMANDMENTS

386-390.) Third, the scale values assigned to each rank were averaged for each crime and arranged in order as a scale from 0 to 100. The final scale values for the commandments as rated by various groups of individuals are shown in the accompanying chart and in Tables 4 and 5.

By placing the 10 commandments on an objective scale it was possible to measure the difference in attitude between various groups of individuals. This technique also provides a method for determining the relative importance of each commandment.

In the accompanying chart (Figure 1) the ratings of 200 prisoners are compared with the ratings of 148 college students. Both groups agree that the commandment "Thou shalt not kill" is most important, although the prisoners place it at 65.6 on the scale while the students place it at 74.3.

TABLE 1
FREQUENCY TABLE OF RATINGS
(148 college students)

	(1=most important 10=least important)									
	1	2	3	4	5	6	7	8	9	10
Thou shalt not kill	80	35	20	6	4	3				
Honor thy father and thy mother	33	25	22	18	24	15	5	3	2	1
Thou shalt not steal	1	46	35	35	17	4	5	1	3	1
Thou shalt not bear false witness against thy neighbor	9	9	28	24	39	19	9	7	3	1
Thou shalt not commit adultery	3	18	23	32	20	21	9	8	6	8
Thou shalt not crave thy neighbors property	3	4	6	18	19	42	20	10	9	17
Thou shalt have no other God before me	17	4	7	3	6	12	25	39	28	7
Thou shalt not make nor worship idols	2	5	3	7	8	17	38	31	21	16
Thou shalt not take the name of the Lord thy God in vain		2	3	3	8	8	26	25	55	18
Remember the Sabbath to keep it holy			1	2	3	7	11	24	21	19

TABLE 2
FREQUENCY TABLE OF RATINGS
(200 Penitentiary inmates)

	(1=most important 10=least important)									
	1	2	3	4	5	6	7	8	9	10
Thou shalt not kill	70	39	22	19	12	14	10	6	6	2
Honor thy father and thy mother	59	31	26	21	16	10	8	3	8	18
Thou shalt not steal	6	38	39	35	16	22	16	10	10	8
Thou shalt not commit adultery	5	17	25	33	31	29	23	16	9	12
Thou shalt have no other God before me	25	20	16	12	20	14	21	25	26	20
Thou shalt not take the name of the Lord thy God in vain ..	14	19	16	15	21	24	30	29	12	20
Thou shalt not bear false witness against thy neighbor	4	11	21	20	26	26	24	23	32	13
Thou shalt not make nor worship idols	7	13	19	12	14	27	18	26	38	26
Thou shalt not crave thy neighbors property	2	5	8	14	30	25	28	35	24	29
Remember the Sabbath to keep it holy	8	7	8	19	14	9	22	27	35	51

Again, both groups agree that the commandment "Remember the Sabbath to keep it holy" is least in importance. The rank-order coefficient of correlation between the ratings of the college students and prisoners is $+.823 \pm .07$. This indicates a rather marked degree of agreement in judgment between the two groups.

Table 1 shows the number of students who rated each commandment in first position, in second position, et cetera. This table shows the relative uniformity of agreement among the students. For example, it will be seen that 80 of 148 students placed "Thou shalt not kill" in first position while three individuals considered "killing" as sixth in importance. There is a rather striking degree of agreement among the individuals in the college

TABLE 3
FREQUENCY TABLE OF RATINGS
(145 Reformatory inmates)

	(1=most important 10=least important)									
	1	2	3	4	5	6	7	8	9	10
Honor thy father and thy mother	74	17	14	13	9	5	1	7	2	3
Thou shalt not kill	26	32	17	18	11	19	7	6	6	3
Thou shalt not take the name of the Lord thy God in vain	11	21	22	16	5	12	18	17	18	5
Thou shalt not steal	3	25	21	12	24	8	20	14	13	5
Thou shalt have no other God before me	17	15	11	10	18	20	12	10	16	16
Thou shalt not make nor worship idols	5	12	14	16	8	14	15	22	13	26
Thou shalt not bear false witness against thy neighbor	2	10	14	14	16	14	18	15	25	17
Thou shalt not commit adultery		3	9	22	17	28	19	11	15	21
Remember the Sabbath to keep it holy	7	8	15	10	21	14	17	15	15	23
Thou shalt not crave thy neighbors property		2	8	14	16	11	18	28	22	26

group. Separate scales were constructed for both men and women but no significant differences were noted.

Table 2 shows the relative uniformity of agreement among the members of the prison group. By comparing Table 2 with Table 1 it will be seen that a greater degree of disagreement is found among the prisoners than among the students. For example, it will be seen that 2 of 200 prisoners believe that killing is least in importance. One of these men was sent to prison on a charge of manslaughter. He is classified as a psychopathic feeble-minded individual. The other was sentenced to prison for larceny of an automobile. He has average intelligence and is classified as having an "inadequate personality." It seems significant that 38 of 200 prisoners

(19%) placed "killing" below fifth position in the list while only 3 of 148 college students (2%) placed "killing" below fifth position.

Table 3 shows the relative uniformity of agreement between the 145 inmates of The Illinois State Reformatory. Again it is to be observed that there is less uniformity of opinion between individuals in the reformatory group than among the students.

In Table 4 the younger group of Reformatory inmates is contrasted with the older group in the Penitentiary. It is interesting to note that the boys in the Reformatory regard the commandment to "Honor thy father and mother" as more important than the commandment "Thou shalt not kill."

TABLE 4
RELATIVE IMPORTANCE OF THE TEN COMMANDMENTS
(145 Reformatory boys compared with 200 Penitentiary inmates)

	Reformatory (mean age 20.3)		Penitentiary (mean age 29.8)	
	Scale value	Rank order	Scale value	Rank order
Honor thy father and thy mother	69.7	1	61.1	2
Thou shalt not kill	57.9	2	65.7	1
Thou shalt not take the name of the Lord thy God in vain	51.9	3	48.3	6
Thou shalt not steal	51.4	4	55.3	3
Thou shalt have no other God before me	49.9	5	49.2	5
Thou shalt not make nor worship idols	44.4	6	43.7	8
Thou shalt not bear false witness against thy neighbor	44.3	7	46.3	7
Thou shalt not commit adultery	43.5	8	50.8	4
Remember the Sabbath to keep it holy	40.9	9	39.1	10
Thou shalt not crave thy neighbors property	39.5	10	41.5	9

The younger group placed "adultery" in eighth position while the older group placed it in fourth position. The rank-order coefficient of correlation between the reform-school group and the penitentiary group was $+0.803 \pm 0.08$. This indicates a marked degree of agreement between the two groups. This high degree of agreement can be seen clearly by comparing Tables 2 and 3.

The opinions of 31 parents are presented as a matter of general interest in Table 5. There are too few cases to justify further comment.

The foregoing facts have prepared the way for a final important comparison, namely, that between the sequence in order of arrangement of the ten commandments established by the various groups and the sequence found in the Bible itself. The order in which the 10 commandments are presented in Exodus and in Deuteronomy of the King James version of the Bible is the same except for the final prohibitions pronounced against concupiscence. In Exodus the tenth commandment states that "Thou shalt not covet thy neighbors house nor thy neighbors wife" while in Deuteronomy the reversed order states that "neither shalt thou desire thy neighbor's wife or covet thy neighbor's house." In Catholic Bibles the first two commandments found in the King James version are combined (the reference to idols and the precept to adore but one God) while the last is divided into two commandments in accordance with the statement in Deuteronomy in which family rights take precedence over property.

The coefficient of correlation between the rank order of the ten commandments in the King James version of the Bible and the rank order established by the students was -0.513 ± 0.12 . This marked negative relationship seems highly significant. By comparing the rank order established by the students in the accompanying chart with the rank order found in Exodus XX it was found that the first four commandments listed as most important by the students constitute the last four in the Bible. In short, the chief interests of the

TABLE 5
RELATIVE IMPORTANCE OF THE TEN COMMANDMENTS
(as rated by 31 parents)

Thou shalt not kill	74.0
Thou shalt have no other God before me	59.5
Honor thy father and thy mother	55.5
Thou shalt not steal	53.5
Thou shalt not bear false witness against thy neighbor	52.2
Thou shalt not commit adultery	52.1
Thou shalt not make nor worship idols	46.0
Thou shalt not crave thy neighbors property	43.6
Thou shalt not take the name of the Lord thy God in vain	39.1
Remember the Sabbath to keep it holy	34.3

college group seem to be centered about the duties of man to man while the biblical emphasis is placed upon the duties of man to God.

When the ranked opinions of the penitentiary inmates are compared with the rank order of the commandments found in the Bible a similar disagreement is found. The rank order coefficient of correlation between the prisoners and the Bible is $-.03 \pm .00$.

In conclusion, the following facts are presented:

1. There is a marked degree of agreement in attitudes of college students and penitentiary inmates toward the ten commandments.
2. There is closer agreement among the college students than among the prisoners as to the relative importance of the ten commandments.
3. Prisoners and students consider the commandment not to kill as most important while keeping the Sabbath day holy is least important.
4. College students and prisoners tend to rate the commandments which deal with the duties of man to man higher than those which deal with the duties of man to God. This is a reversal of the biblical order.

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Illinois Institute for Juvenile Research
Chicago, Illinois

A STUDY OF RACIAL ATTITUDES OF COLLEGE STUDENTS

K. C. GARRISON AND VIOLA S. BURCH

The general subject of attitude has been studied by various techniques and around many problems within recent years. An interesting review of most of the major studies pertaining to attitudes is presented in a recent book by Katz and Allport (1, pp. 379-384).

In summarizing results of various studies, they point out that in testing the students' reactions to various races there is found close agreement in various parts of the country upon racial groups against whom the strongest prejudice exists. The authors show that the same consistency of pattern of racial aversion was found in the study made at Syracuse University by Katz and Allport as was found in those made by Bogardus in various parts of the country. Reinhardt made a similar study comparing prejudices of Northern and Southern students. He was surprised by finding the Northern students expressing greater prejudice against the Negro than the Southern students. The authors point out also that a study made by Donald Young at the University of Pennsylvania brings out the same uniform cultural pattern of group prejudice. Young also found that his course on race problems had not changed the racial prejudices of the stu-

dents. While they tended to show the "desired" attitudes during the course, they really retained their old, deeply-rooted attitudes and prejudices. All these groups, while consistently rating some other races—the Turk, for instance—very low in the scale, placed the Negro at or near the bottom; and a study made by Symonds testing the liberal-mindedness of students in Hawaiian schools found the Negro placed lowest in the scale of a group of 21 nationalities.

The primary purpose of this study is to learn something of the amount and nature of anti-Negro prejudice existing among students at North Carolina State College. Some subsidiary problems encountered are a comparison of the racial attitudes of the students from the various college classes, and a comparison of the racial attitudes of the students coming from a rural background with those from an urban.

A list of 35 statements taken, with slight modifications, from the Social Science Research Council's questionnaire on racial attitudes was given to 163 students in psychology and sociology classes at North Carolina State College. Each student was given a list of the statements and instructed to mark each statement true or false according to his strongest inclination. Ample time was allowed for marking the statements and any statement not clear to the group was clarified by the experimenter in charge. This group of students was made up of 53 freshmen, 40 sophomores, 47 juniors, and 23 seniors.

Table 1 presents the 35 statements along with the percentage of students endorsing each. The three statements endorsed by the largest percentage of students pertain to a continued separation of the races, somewhat in harmony with the general practices in the South. Two of the three statements endorsed by the smallest percentage of college students refer to a social equality between the Negroes and whites. However, the fact that only 17.2% endorsed the statement, "The Negro has no rights which the white man is bound to respect," shows the students recognizing certain rights of the Negro. The opinions of the students are about equally divided on the statements 17, 18, and 19. These statements refer to the color of the Negro as an undesirable feature, white men being required to work with Negroes, and the justifiableness of lynching for rape.

An analysis of the results by classes (see Table 2) reveals a fairly consistent smaller percentage of students endorsing statements 1, 2, 3, 4, and 5 (those receiving the largest percentage of total endorsements) as we advance from the freshman to the senior classes. In the case of the five statements receiving the smallest percentage of total endorsements no consistent or reliable differences between the classes are apparent. There is no consistent pattern of attitude that distinguishes one class from another, although on most statements the seniors are more generous or lenient toward the Negro than are the lower classes. It was only on questions

TABLE 1

LIST OF RACIAL PROPOSITIONS AND THE PERCENTAGE OF COLLEGE STUDENTS
ENDORING EACH ($N=171$)

Proposition	Percentage
1. The Negro should remain a distinct and separate race for the good of all	87.1
2. Negroes should not desire social equality with the whites, but should develop a separate culture in America	80.9
3. Negroes are happier in their own separate neighborhoods and should stay there	79.1
4. Negroes are not yet ready to share equally in the full privileges of citizenship	77.8
5. Negroes should be accorded civil but not social equality	73.6
6. There should be cultural advantages but not cultural equality	73.0
7. It is not fair to judge the Negro by tests taken from the environment of the white race	72.3
8. The Negro race will never reach the cultural and intellectual level of the whites	70.6
9. Negroes are inferior to white people in innate capacity	69.3
10. The Negro has a distinct contribution to make from his own racial experience in art and philosophy	69.3
11. The Negro has his own unique contribution to make to American life and should be given every opportunity to express himself	64.4
12. The older generation of Negroes was more desirable than the present generation	62.5
13. Antagonism between Negroes and whites is not an isolated problem; it is essentially the same as antagonism between Jews and Gentiles; Italians and Polish, etc.	58.9
14. Negroes are no different essentially from other people	56.4
15. The Negro race is slowly reaching the cultural and intellectual level of the white race	55.8
16. Negroes as a race are repulsive to me	53.9
17. Color in itself makes the Negro undesirable	49.6
18. White men should not be required to work with Negroes	49.1
19. Lynching for rape is justifiable	47.8
20. The Negro's proper place is in manual labor	44.8
21. Negroes are equal to white people in potential ability, but are backward because they have lacked opportunity	44.8
22. The principles of brotherhood should hold true in relationships with Negroes	42.3
23. There are traits of excellence the Negro possesses in greater measure than the white man	41.6
24. The 14th and 15th Amendments (giving full political rights) should be enforced as a moral issue	40.5
25. Negroes are more desirable than foreigners	37.4
26. The Negro race is rapidly reaching the cultural and intellectual level of the whites	36.2
27. Mulattoes are superior to blacks because of their white blood	35.6
28. The education of Negroes will solve the race problem	33.7

TABLE 1 (*continued*)LIST OF RACIAL PROPOSITIONS AND THE PERCENTAGE OF COLLEGE STUDENTS
ENDORING EACH ($N=171$)

Proposition	Percentage
29. If the line of inter-marriage need not be crossed, I wish that social equality in equally cultured circles might be accorded the Negro	23.3
30. The Negroes should be granted full political equality	21.4
31. Negroes should not be educated beyond high school because it would be useless	20.2
32. Any adjustment of the Negro question will be agreeable to me; whether they are finally admitted to my society or more rigidly excluded from it	19.0
33. The Negro should aim at and as soon as possible demand social equality	19.0
34. The Negro has no rights which the white man is bound to respect	17.2
35. Negroes should be accepted now to complete social equality with white people	5.5

2, 3, 19, and 20 that there is an absolute consistency of decline in the percentage of students from the four college classes endorsing each statement. There is a consistent increase in the percentage endorsing statements 14 and 28. Since statements 2 and 3 are more or less the conventional attitude toward the Negro, 19 and 20 a rather biased attitude, while 14 and 28 are more liberal expressions, one would conclude that there is on the average a more liberal or at least lenient attitude toward the Negro found among the upper classmen at State College.

TABLE 2

COMPARISON OF THE PERCENTAGE OF PUPILS FROM THE DIFFERENT CLASSES
ENDORING EACH STATEMENT

Statement number	Freshmen	Sophomores	Juniors	Seniors
1	86.8	82.5	85.1	69.5
2	86.8	80.0	78.8	73.9
3	92.5	90.0	85.1	65.2
4	83.1	75.0	85.1	56.5
5	73.6	90.0	74.4	43.5
31	15.1	32.5	23.4	8.7
32	18.9	20.0	17.0	21.7
33	15.1	15.0	19.2	30.4
34	13.2	32.5	8.5	8.7
35	5.7	17.5	2.1	21.7

TABLE 3

COMPARISON IN PERCENTAGE OF RURAL AND URBAN STUDENTS ENDORSING EACH OF THE THIRTY-FIVE STATEMENTS

Statement number	Rural students	Urban students	Statement number	Rural students	Urban students
1	84.2	89.5	21	31.2	50.3
2	83.4	80.0	22	35.4	45.2
3	85.4	76.5	23	45.8	46.9
4	85.4	74.7	24	39.5	40.8
5	77.2	72.2	25	39.5	36.5
6	89.6	66.1	26	43.7	33.0
7	77.2	70.3	27	45.8	31.3
8	83.4	65.2	28	33.3	33.9
9	70.8	68.7	29	18.7	25.2
10	64.6	71.2	30	14.6	24.3
11	75.0	60.0	31	8.3	25.2
12	66.7	60.8	32	10.4	22.6
13	60.3	58.2	33	16.7	20.0
14	41.7	62.7	34	14.6	18.3
15	50.0	58.2	35	2.1	7.0
16	60.3	58.2			
17	58.3	46.1			
18	45.8	50.2			
19	47.8	47.8			
20	37.5	47.8			

A comparison of the students from a rural and urban environment reveals a marked amount of agreement. The rural students are least in favor of political equality (statements 4, 24, and 30), believe least in the potential ability of the Negro (statements 8, 9, 21, and 23), and agree with the urban students that he should not be accorded social equality (statements 5, 29, 33, and 35). They are more inclined to believe in the intellectual and cultural development of the Negro as indicated by their responses to statements 20 and 31. These statements pertain to "The proper place of the Negro being in manual work" and "The education of the Negro beyond high school."

To summarize the findings, we note a considerable amount of anti-Negro prejudice among the students of North Carolina State College. The nature of the prejudice is chiefly social and political. As for the different subdivisions, we find marked consistency among the separate groups. There is indication, however, that age, home environment, and degrees of college training are to some extent factors in determining differentiated racial attitudes. The seniors, for instance, show a somewhat more lenient attitude than do the members of the lower classes. Rural students appear to be less generous in their attitude towards political equality, while they

are probably more lenient towards the intellectual development of the Negro. There is a general bias against any form of social equality. Pessimism concerning the possible future of the race is expressed, but perhaps not so much as is generally expected of Southern students.

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North Carolina State College
Raleigh, North Carolina

BEAUTY AS RELATED TO INTELLIGENCE AND EDUCATIONAL ACHIEVEMENT

ANNA MOHR AND FREDERICK H. LUND

That a certain uniformity tends to characterize the development of most human traits is now generally recognized. More frequently than not, high status in one trait is associated with high status in another, low status in one with low status in another. Strength tends to be associated with strength, mediocrity with mediocrity, weakness with weakness. This, at least, is the rule, though there are many exceptions. The tendency toward a positive correlation between desirable traits was first brought to public attention through the studies of Galton (1). Contrary to popular belief, Galton found men of superior intellect to be also of superior physical constitution.

That people, in the absence of more exact knowledge, should have tended to believe in a compensatory rather than a positive relationship between desirable traits is a fact or condition which has interested a number of writers. L. S. Hollingworth, in commenting on this tendency, states that "perhaps it had its source in human longing for a 'just nature,' that is, for a nature that will make an even distribution of gifts among us and see that he who has a fine mind shall not also have wealth, strength, dexterity or beauty" (5, p. 78).

But while no negative relationship exists between desirable traits, as presupposed by the concept of compensation, neither is the relationship always very positive or very high. In fact, in some instances, it approaches zero, i.e., no relationship at all. As between mental traits and physical traits, the correlation typically reported is in the neighborhood of $+0.25$ or $+0.30$. But even this correlation allows for so many exceptions as to be almost without predictive value.

Now among the traits which yield very low, though usually positive, correlations are those of beauty and intelligence. They are also traits which are popularly believed to show a compensatory or negative relationship.

One of the first attempts to secure data along this line was made by Dickson [quoted by Gates (2, p. 579)], who reported a correlation of $+ .44$. H. L. Hollingworth (3, p. 170; 4, p. 40) secured a coefficient of $+ .34$ between beauty and intelligence, when the standing in these traits was determined by estimates of acquaintances. Consensus ratings for beauty, when correlated with objective measures of intelligence, yielded a slightly higher coefficient of $+ .40$. These same ratings, when correlated with academic records, yielded a coefficient of $+ .06$. In L. S. Hollingworth's study of gifted children, in which she compared the traits of a group of adolescents who in childhood tested above 135 IQ with a group of adolescents who tested between 90 and 110 IQ, a comparison was also made between these groups with respect to general appearance or attractiveness. Photographs were used as a basis for comparison. Controlling all data so as to avoid fallacies of selection, and submitting all photographs to judges who were completely naïve to the experiment, the author found in two separate series that the gifted were judged to be reliably "better looking" than the adolescents of average intelligence.

The purpose of the present study was to secure a check on earlier studies, and to note (1) possible differences in results obtained through the use of actual S's rather than photographs, and (2) to note any variations which might depend upon individual or group differences, both as related to the selection of S's and the selection of judges.

METHOD AND PROCEDURE

Four groups of college students, two groups of boys and two of girls, were selected to serve as S's. These groups, each composed of 25 S's, were rated for beauty or physical attraction by two groups of judges, each group composed of 12 boys and 12 girls. The judges, like the S's, were selected from the general student body. In connection with the selection of S's, the question arose as to how far it might be feasible to rule out or equate for some of the factors which influence judgments of beauty. For instance, some S's might be distinctly Latin in appearance, others distinctly Nordic. Should such individuals be eliminated from the group? If so, how about extreme variations in height, in weight, or facial type? One judge might have less objection to aquiline features, another to broad or narrow features. And how about general appearance, dress, skin texture, blemishes, the wearing of glasses, the parting of the hair, the use of rouge, powder, and other cosmetics? Should one also try to regulate these? Obviously, the attempt to equate for the different features which might influence judgments of beauty would ultimately leave nothing upon which to base one's judgments. For beauty, after all, is not a specific trait or substance. It is highly complex—a way of appearing or behaving—in reality, a way of impressing one's associates. As the value of an object is scarcely inherent in the object, but depends upon what people will pay for it, so the beauty of an individual is not a property of the individual, but depends largely upon people's like or dislike for his most distinctive:

traits. Since no criterion exists as to what traits may legitimately be included or excluded in the judgment of beauty, and since the attempt to equate for all important variables would leave us without anything upon which judgments of beauty might be based, it was decided to use S's and judges randomly selected and representative of the general run of college students.

The S's and the judges were not, as a group, known to each other, the S's being enrolled in one college and the judges in another. The judges were allowed 15 minutes to rank in order of merit the S's of a given group, who were arranged in a semi-circle before them. The typed instructions given to the judges were as follows:

You are to judge the individuals before you for beauty or attractiveness. Arrange them in order of merit, placing at the top the individual you consider most attractive, at the bottom the individual you consider least attractive, and so on until you have them all arranged according to the possession of the trait judged. Make a rough grouping first. Then, through more careful individual comparisons, decide upon your final arrangement. Each subject is identified by his number. This number is to be used in the order of merit arrangement.

RESULTS

Measures of Relationship. The correlations obtained between beauty and intelligence were very low, ranging from $+.31 \pm .12$ to $-.09 \pm .13$, according to the group judged. The average for the girl S's was $+.28 \pm .12$; the average for the boy S's was $-.08 \pm .13$. The correlations between beauty and scholarship were slightly higher, ranging from $+.29 \pm .12$ to $+.10 \pm .13$. The average for the girls in this case was $+.22 \pm .13$; for the boys, $+.18 \pm .13$. The correlations between intelligence and scholarship were $+.52 \pm .10$ and $+.41 \pm .11$, for the girls and the boys respectively. Below are presented the averages of the coefficients for the different groups. The results for the boy S's and the girl S's are shown separately, as well as the results for the girl judges and the boy judges.

	<i>r</i> for girl S's	<i>r</i> for boy S's
<i>Beauty</i> (combined ratings—girl and boy judges) and <i>intelligence</i>	$+.28 \pm .12$	$-.08 \pm .13$
<i>Beauty</i> (as determined by girl judges) and <i>intelligence</i>	$+.28 \pm .12$	$-.01 \pm .13$
<i>Beauty</i> (as determined by boy judges) and <i>intelligence</i>	$+.24 \pm .13$	$-.07 \pm .13$
<i>Beauty</i> (combined ratings—girl and boy judges) and <i>scholarship</i>	$+.22 \pm .13$	$+.18 \pm .13$
<i>Beauty</i> (as determined by girl judges) and <i>scholarship</i>	$+.25 \pm .13$	$+.14 \pm .13$
<i>Beauty</i> (as determined by boy judges) and <i>scholarship</i>	$+.17 \pm .13$	$+.21 \pm .13$
<i>Intelligence</i> and <i>scholarship</i>	$+.52 \pm .10$	$+.41 \pm .11$

Measures of Variability. It is to be expected that the judges, in rating subjects for so subjective a trait as beauty or physical attractiveness, should show a good deal of variability in their judgments. A measure of variability was secured by determining the average number of steps in the order of merit arrangement by which the judges deviated from the consensus arrangement. The A.D. for the girls in judging the girls was 4.67, in judging the boys, 3.67. The A.D. for the boys in judging the girls was 4.26, in judging the boys, 4.87. Thus the sexes varied less in rating the opposite sex for attractiveness than in rating their own sex. It will be seen that the variability of the judges, while high, is not nearly as high as if the ratings had been made by chance, since chance ratings would yield an A.D. of about 6.5. Inspection of the ratings for individual S's showed that variability was much higher for the middle group than for those holding a high or a low position in the consensus ratings. In some cases the variability was two and three times as great for an S holding an average position as for one standing near the top or near the bottom.

INTERPRETATION OF RESULTS

Taking the results as a whole, it should be clear that beauty or attractiveness, as determined by these consensus ratings, is not closely associated with intelligence or with scholarship. The correlations for the different groups, while mostly positive, are very low. The low correlations and the high degree of variability in the judgments are indicative of the essentially subjective nature of the traits under consideration. The judges apparently are not agreed as to what constitutes beauty, and fail to detect specific cues or signs to guide their judgments.

That there should be a fairly consistent difference in the correlations obtained for the boys and the girls between beauty and intelligence (the correlation for the boys being lower than for the girls) is rather singular. Thinking that it might have something to do with the adequacy of the intelligence test, an alternate form of the same intelligence test was administered. However, the results thus obtained were not appreciably different.

It is interesting to note that the girls were less agreed in judging their own sex for beauty than in judging the opposite sex. Can it be that they are better judges of beauty in boys than of beauty in girls? Or is it that they are differently motivated in judging their own sex than in judging the opposite? A desire to think of beauty—in their own sex—as somewhat individual, might lead them into rating a given S higher or lower than would usually be the case. It is, of course, also very probable that the girls in judging their own sex react to more features than in judging the opposite sex.

SUMMARY

Consensus ratings for beauty or attractiveness yielded comparatively low, though mostly positive, correlations with intelligence and educational achievement. Most of the correlations between beauty and intelligence and also between beauty and scholarship were in the neighborhood of $+.20$. Four groups of college students, two groups of girls and two groups of boys, served as S's. The consensus ratings for beauty were secured from 2 groups of judges, each group composed of 12 boys and 12 girls. These consensus ratings were correlated with ratings for intelligence and scholarship, as determined by intelligence test scores and by grades received in at least three semesters of college work. The ratings for beauty showed a high degree of variability. On the average, individual judgments deviated from the consensus ratings by about four steps. Deviations were greater for the middle group than for those taking a high or low position in the consensus ratings. The judges showed higher variability in rating their own sex than when rating the opposite sex.

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Temple University
Philadelphia, Pennsylvania

PHYSICAL DEFICIENCY AND EXTROVERSION-INTROVERSION

JOSEPH W. NAGGE AND RAYMOND H. SAYLER

Students of human nature have always been interested in the possible effects of the environment upon features of the individual personality. Extroversion-introversion features have been studied in relation to many variables. As to the relative influence of environmental and hereditary factors in the determination of these behavior patterns there has been diversified opinion. Some authors have held that the environmental situations arising out of prison incarceration, physical defect, position of a child in the family or the community, among other conditions, have marked effects upon the behavior of an individual. Others have noted the peculiar

optimism of the tubercular person, thus suggesting a correlation between extroversion and this disease.

Adler (1) had built a system of psychology basically upon palpable inferiority of organs or the subjective feeling of inferiority. He would make the neurosis and introversion a by-product of the general stunting. Freud (4) has generally taken exception to this point of view, pointing out many crippled individuals who have not reacted to their deficiencies by developing abnormalities of the personality.

Faterson (3) noted the scores of college students suffering from a number of physical disorders of varying degrees of permanency, on Heidebreder's Inferiority Attitude Scale. The "results indicate that the relationship between organic inferiority and feelings of inferiority, which Adler finds in his clinical studies, is also found to exist, as a slight but consistent and definite tendency, in the 'normal' population, when the data are analyzed" (p. 101).

Tansley (13) and Kempf (9) stress the importance of hereditary psychological mechanisms in the determination of personality types.

Freyd (5) discerns the possibility of correlating certain types of personality with the functioning of certain ductless glands. He writes further: "They have apparently overlooked the possibility that introversion may result in an individual who suffers from some physical defect of which he is constantly reminded in childhood; in a person who belongs to a despised minority; in a stranger in a foreign land; or in a petted or only child" (p. 82).

McDougall (11) writes: "We may assume that the position of any subject in this scale (extroversion-introversion) is a function of some quite general property of his nervous system; and we may assume with considerable probability that this property again is a function of some chemical product or products of metabolism; that, in short, each subject's position in the introvert-extrovert scale is mainly determined by some chemical influence in the nature of a hormone or endocrine secretion, or some complex chemical resultant of the general metabolism" (p. 442). He later further develops this chemical theory of temperament (10).

Some of these points of view would credit the environment with having much influence upon the formation of temperament pattern, others would look rather to hereditary and chemical factors. It seems that permanent physical deficiency should be a test of one of the environmental factors and its influence upon fundamental personality tendencies.

The problems of our project are as follows:

How would the scores of a physically defective group compare with those of a normal group on extroversion-introversion when the two groups are alike in age, sex, and intelligence? Will introversion increase with the length of time a subject has been physically defective? If we can answer

these questions we can throw some light upon one feature of the environment and its influence on introversion-extroversion.

THE EXPERIMENT

The Neymann-Kohlstedt Diagnostic Test for Introversion-Extroversion (1928 Revision) was administered to a group of physically handicapped children of the Jesse L. Spalding High School.¹ The group consisted of 144 students, 79 girls and 65 boys. Mean chronological age was 16.70 years. The average IQ was 98.² The tests were given as group tests by two trained administrators.

The subjects were asked to indicate their racial origins. The racial composition of this section was reported by them as follows: Negro, 1; Greek, 1; Nordics (Scandinavians, Germans, Britains, Americans), 55; Latins (French, Spanish, Italians), 14; Slavs (Czechs, Slovaks, Russians, Poles), 53; Jews, 20.

The physical deficiencies of the subjects were the results of a total of 21 diseases. The most representative precipitating diseases were as follows: poliomyelitis, 61 cases; scoliosis, 14 cases; spastic paralysis, 10 cases; cardiacs, 10 cases; etc. The remaining 33 cases were scattered through 16 diseases. The medical records of the subjects showed that the average number of years the group had been deficient physically was 11.53 years.

On this I-E scale the mean score of the experimental group was -1.26 .³

The same test was next applied to a control group of children of Lake View High School. The control group of 144 was chosen, to match in so far as possible the experimental group with respect to sex, age, and race, from a total of 219 tests returned. None of the control group, which contained 79 girls and 65 boys, reported a physical defect. The average age was 16.82 years.

The racial components of the control group as reported by the subjects

¹The Jesse L. Spalding Branch of McKinley High School of Chicago is an integral part of the public school system of that city. Its student body is exclusively composed of physically handicapped children, both sexes being admitted.

Our thanks are due to the faculty of the school who so kindly gave of their cooperation to our project. Our especial thanks are due to Professor C. L. Walp of the Spalding faculty for his valuable assistance in the compiling of some of the personal data gathered.

The faculty members of the institution were unanimous in expressing their belief that there was little difference in temperaments between their charges and those of other city high schools.

²The subjects were given one of the following intelligence tests: Kuhlmann-Anderson, Otis High Form A, or Otis Classification.

³Minus scores indicate the degree of introversion; plus scores indicate the degree of extroversion.

were: Negro 1; Greek, 1; Nordics, 94; Latins, 14; Jews, 10; Slavs, etc., 24.

The mean I-E score of this group was $-.0902$.

The difference in I-E score between the arithmetic means of the experimental and of the control groups was 1.170 with a standard deviation of the difference of the means of 1.150. The difference is only about one-third as large as a reliable difference should be.

We were interested next in noting the possible effect of racial grouping, within certain rough limits, on the I-E score. McDougall (11) has put forth racial factors as probably influential in determining introversion-extroversion tendencies.

The experimental group of 144 was divided into a Nordic group which was composed of a total of 90, 38 boys and 52 girls. The Nordic experimental group showed an average score of -1.11 with a mean chronological age of 16.70; the non-Nordic group an average score of -1.35 , and an average age of 16.50. The difference of the group means was .24 with a standard deviation of the difference of 1.691.

The control group of 144 was also divided into a Nordic group and into a second non-Nordic group, which was composed of all the other racial stocks represented. In the group of 94 Nordics there were 46 boys and 48 girls. Mean chronological age was 16.90. The mean introversion-extroversion test score here was found to be .601 for the group of 94. The

TABLE 1

GROUP COMPARISONS BY MEANS OF EXTROVERSION-INTROVERSION SCORES

High-school groups	No.	Mean	Diff.	<i>S.D.</i> _{diff.}	<i>Diff.</i>
					<i>S.D.</i> _{diff.}
Physical defective	144	-1.26	1.17	1.15	1.02
Normal	144	-0.09			
Nordic (defect.)	54	-1.11	0.24	1.69	0.14
Non-Nordic (defect.)	90	-1.35			
Nordic (normal)	94	0.60	2.00	1.85	1.08
Non-Nordic (normal)	50	-1.40			
Nordic (defect.)	54	-1.11	1.71	1.73	0.99
Nordic (normal)	94	0.60			
Non-Nordic (defect.)	90	-1.35	0.05	1.82	0.03
Non-Nordic (normal)	50	-1.40			
Poliomyelitis	61	-1.92	1.92	1.93	0.99
Normal	61	0.00			

non-Nordic group numbered 50, 19 boys and 31 girls. Mean chronological age was 17.10. The mean I-E test score was -1.400 . The difference between the two groups was 2.001 with a standard deviation of the difference of 1.855.

In order to find the possible effect of type of physical disorder upon the I-E score, we next selected the poliomyelitis group from our original experimental group. This was the largest homogeneous group, numbering 61 cases, the only one sufficiently large with which to work. The racial distribution was: Nordics, 27; Jews, 7; Latins, 6; Slavs, etc., 21. There were 40 girls and 21 boys. The average age was 16.67 years and the average scores, -1.918 .

The control group was selected with respect to race, sex, and age to match the poliomyelitis group as closely as possible. Here we had 34 Nordics, 7 Jews, 6 Latins, 14 Slavs. There were 40 girls and 21 boys. The average age here was 16.94 years. This average score was .000.

The difference between the arithmetic means showed the experimental group to be 1.918 higher. The standard deviation of the difference of the means was 1.93.

The question immediately arises as to whether or not introversion would tend to be higher in those cases where physical deficiencies have existed the longest period of time. Will the degree of introversion be correlated with the length of time crippled? The r between length of time defective and the degree of the introversion score was .037 with a *P.E.* of .059.

A scanning of our data reveals some interesting phenomena. We find no statistically reliable differences between any of our groups in introversion-extroversion. There seems to be a slight tendency towards higher introversion in the physically defective group. This group would show higher introversion scores than the normal group in about 84 out of 100 chances.

However, when we split the normal control group into Nordic and non-Nordic divisions, we find the latter more introverted than the former. This was the greatest difference in mean score that was found in the comparisons of our groups. This phenomenon is not surprising when it is remembered that our culture is essentially Nordic in tradition, and hence that the other group would conflict with it more frequently. It would seem from our study that racial differences in introversion-extroversion are a more important factor than that of physical deficiency.

Another relatively large difference was found when the mean scores of the Nordic defectives and the Nordic normals were compared. The first group showed a higher average introversion score. However, the non-Nordic defective group showed itself not as introverted as the non-Nordic normal group. Physical deficiencies do not appear to raise the group introversion score for the non-Nordics, or else our non-Nordic normal group is atypical. According to our results non-Nordics are more

introverted than Nordics of both the respective experimental and control groups. This fact may be due to a basically higher introversion in non-Nordic personalities or it could be referred to the stresses of the environment. Further research is needed on this problem.

It is possible that if our group of physical defectives had been gathered individually, out of an environment not so favorable to them as that of our experiment, we should have found it more highly introverted. Racial differences as related to basic personality mechanisms should be further investigated.

SUMMARY AND CONCLUSION

1. Our data reveal no reliable differences in introversion-extroversion between a group of high-school students who are permanently defective physically and a group free from permanent defects.

2. Length of time crippled appears not to be an important factor in heightening the introversion tendencies.

3. Racial differences as related to introversion-extroversion tendencies should be further investigated.

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University of Chicago
Chicago, Illinois

THE SELF-ESTIMATION OF CHINESE STUDENTS

C. W. LUH AND R. C. SAILER

Are there cultural differences in self-rating tendencies? That there are such has been suggested on the basis of the study by Trow and Pu (4) showing that 18 Chinese students in America tended greatly to underestimate themselves in six desirable traits (2). The results of several incidental studies made in China will be offered that seem to show the same tendency toward over-rating that is generally found in the West.

TRAIT RANKING

Twenty Chinese students of the former National Southeastern University (now National Central University), Nanking, ranked themselves and each other on five traits. Where not intimate friends, they were at least close associates. Rankings were made anonymously in class and no attempt was made to "deceive" the subjects into unrestrained self-estimation. The traits, stated in Chinese to the students, were

1. Cleanliness (ch'ing chieh)
2. Good looks (mei)
3. Courage (yung kan)
4. Liveliness, "pep" (huo p'o)
5. Judiciousness, shrewdness (ching ming)

Results are given in Table 1, where the median is used for central tendency.

TABLE 1

	Trait				
	1	2	3	4	5
Number overestimating self	14	11	14	15	11
Number underestimating self	6	8	6	5	8
Overestimates—average	4.3	2.9	4.3	5.0	5.4
Underestimates—average	4.2	2.9	4.7	2.2	5.6
Tendency to overestimate—average	1.8	.6	1.6	3.2	1.0

One individual underestimated on all five traits, two on four traits, two on three traits, four on two traits, six on one trait, and five on no traits.

Conclusions. (1) Overestimation appears in all five traits. (2) Degree of over- or underestimation is about equal except for "liveliness." (3) Trait 5 shows large errors in estimate each way. This may be due to the dual nature of the trait, combining judiciousness with shrewdness in a possibly bad sense.

TRAIT RATING

Forty men and 35 women students in Yenching University, Peiping, were asked to rate themselves anonymously in each of ten traits. The scale consisted of the figures 1 to 9, with 1 representing the worst of *their classmates*, 9 the best, and 5 the average. Rating was done in class, with trait names given in English on the blackboard. Table 2 gives the results.

TABLE 2

Trait	Average for men	Average for women	% marking 6, 7, 8, or 9 M and W	% marking 1, 2, 3, or 4 M and W
Honesty	7.2	7.5	83	3
Loyalty to friends	7.1	7.3	83	1
Patience	5.1	5.0	36	41
Unselfishness	5.6	5.7	43	12
Physical courage	5.4	5.0	40	25
Sense of humor	5.3	5.1	44	35
Intelligence	5.8	5.3	47	12
Love of beauty	6.1	6.7	60	15
Kindness, friendliness	6.7	6.4	72	11
Conceit	5.0	3.9	24	41
Average of all traits	5.93	6.19	55	18

As conceit is an undesirable trait, scores for it were reversed in taking the average. The correlation between order of traits in degree of overestimation for men and for women is here nearly perfect, giving $\rho=.96$. A similar group for which detailed records had not been kept showed an average for the same traits of 6.7 for 35 men, and 6.1 for 11 women. The order of traits runs fairly constant, giving $\rho=.87$ between the two groups of women, and $\rho=.92$ for the two groups of men.

The group of 75 here reported gave averages for the ten traits for different individuals as follows:

Range	4.2-8.0
Q_1	5.5
Median	5.9
Q_3	6.4
Mean	$5.95 \pm .055$

Only four men and one woman gave an average self-rating of less than 5.

BEHAVIOR RATING

Records of 20 men and 10 women students, included in the group mentioned above for comparison, were secured on 25 items prepared in Chinese by Mr. C. H. Chee. They were of the nature of those used by Knight and Franzen in their "Self-Analysis Test" (1). The first three behaviors listed were

- Being careful to return borrowed property
- Cheating on examinations
- Keeping appointments on time

Each type of behavior was to be marked separately "For self" and "For others" as to whether followed "always," "almost always," "sometimes," or "never."

Criticism of self and criticism of others were scored separately according to the following arbitrary scheme.

Behavior	Marking	Behavior	Marking	Score
Desirable	"always"	Undesirable	"never"	0
"	"almost always"	"	"sometimes"	1
"	"sometimes"	"	"almost always"	2
"	"never"	"	"always"	3

When marking for either self or others was omitted, neither is reported.

TABLE 3

	Score				Mean
	0	1	2	3	
Chinese men—criticism of self	215	223	26	5	.62
criticism of others	24	255	181	9	1.37
Chinese women—criticism of self	126	90	20	0	.55
criticism of others	23	110	73	30	1.46
60 American juniors—10 items (Knight and Franzen)					
criticism of self	301	248	44	3	.58
criticism of others	53	316	242	8	1.36

With the exception of one woman, each Chinese student was more critical of others than of self. Each of the 25 items showed the same tendency, in varying degree. With "critical" taken to mean tendency to be critical of others *as compared with* self, the men were most critical on the item "keeping appointments on time" and least so on the item "trying to 'get even' for injuries." The women were most critical on "keeping borrowed

property" and least so on "impartially criticizing self" and "doing tasks just as instructed." It is perhaps of interest to note that for the men, criticism of self correlates with criticism of others to the extent of $r=.70$ between the various items, while the women give an r of only .03. Men and women agreed in self-criticism to the extent of $r=.69$, while in criticism of others the r was only .09.

RATINGS OF LIKES AND DISLIKES

Mr. Ch'un-pin Hu employed another technique suggested by Knight and Franzen (1) and studied intensively by Sweet (3). Boys and girls were asked to rate in Chinese 40 items, under the headings of "dislike," "rather not," "don't care," "like some," and "like a lot" according as (1) they themselves feel, (2) they think most others feel, and (3) how they think they ought to feel. Three of Hu's items were:

helping around home
going on a trip
studying the San Min Chu I

His results for the four categories of self-criticism, criticism of others, superiority, and inferiority are here compared with Sweet's medians for 12-, 13-, and 14-year-old boys, figures showing percentages of the total number of items.

TABLE 4

Grade	Med. age	Self-crit.	Crit. others Medians	Super.	Infer.
Hu—Peiping children:					
58 girls 5 & 6	12.2	27.6	80.0	65.0	8.8
106 girls 7, 8, 9	15.3	25.0	60.0	45.0	7.5
85 boys 7, 8, 9	15.6	42.5	75.5	55.0	10.0
Sweet—American boys:					
254 12-year-old		35.7	59.8	35.7	5.1
277 13-year-old		38.0	65.0	42.1	5.3
281 14-year-old		30.3	66.7	46.9	5.3

Hu arranged for alternate rows of children to hand in blanks without signing their names, but found that anonymity made little difference in tendency to criticise others more than self.

Miss C. P. Ch'en had previously found a similar tendency for 34 primary-school children coming largely from highly cultured homes, using a form of her own, and Mr. Chee did the same with a group of about one hundred high-school girls who had had no school contact with foreigners, using both of the last two techniques reported.

SUMMARY AND DISCUSSION

Results of the use of four self-rating techniques are reported for Chinese students, trait ranking, trait rating, behavior rating, and rating of likes and dislikes. They show uniform and decided tendency toward overestimation of self as compared with others, giving results comparable to those found with American subjects.

It should be remembered that none of these sets of items is a direct translation of the English form with which it is compared, and differences in terms of reliability have been purposely omitted. Nevertheless, it seems quite clear that the underestimation found by Trow and Pu could more reasonably be attributed to insufficient confidence in anonymity, or to a state of mind induced by study in a foreign country, than to any general cultural difference between China and America.

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Yenching University
Peiping, China

THE MEASUREMENT OF FILIPINO ATTITUDES TOWARD
AMERICA BY USE OF THE THURSTONE TECHNIQUE

GERTRUDE HILL NYSTROM

An attempt has been made to measure the attitudes of Filipino students toward American life by use of the Thurstone technique. Current literature in the field of race relations was searched for suitable brief statements or comments on American life made by Filipino students. Such studies were examined as the Pacific Coast Race Relations Survey, Social Distance Studies, and unpublished reports of Oriental Student Conferences in the United States. These statements in turn were submitted and sorted by 50 Filipino students selected at random from the Directory of Filipino Students in the United States, 1931. The subjects were asked to sort the 113 statements into 11 piles to represent an evenly graduated series of attitudes from those extremely antagonistic to America to those which were much in favor of America. In sorting the statements the subject did

not express his own opinion about America, but rather the degree of prejudice which he believed expressed by the various statements. The 113 statements were mimeographed on small slips, one statement on each slip, which were given to each sorter with careful instructions as to the procedure to follow.

The scale values of the statements were determined graphically. The returns were tabulated so as to show for each subject the pile in which he placed every one of the 113 statements. From such a tabulation the data were assembled into a table showing the accumulative proportions of the sorting of the 113 statements by the 50 subjects. The graph is plotted directly from these proportions. The steps of degree of prejudice represent the X-axis and the accumulative proportions the Y-axis. The point at which the curve crosses the 50% line is assigned as the scale value of each statement. It is believed that 50 subjects were a sufficient number for the sorting process since the mean discrepancy for the complete list of 113 statements between the scale values which were determined from the first 25 subjects and the scale values which were determined from the group of 50 subjects is .048. Thurstone considers that a mean discrepancy of .074 or less is very small and indicates that the number of subjects used is sufficient to stabilize the scale values for the method of equal-appearing intervals that we have used.

The method used of measuring the ambiguity of the statements was to determine the scale distance between the scale value at which the curve of proportions has an ordinate of 0.25 and the scale value at which the same curve has an ordinate of 0.75. This is known as the Q-value and is merely the distance between the two quartile points of the curve. In selecting the statements for use none was included which had a Q-value higher than 2. Thurstone uses no statements with Q-values above 3.

The reliability of the scale-values was measured. The standard deviation of the distribution of scale-values is on the average 1.10 scale units. The scale-value of an opinion is the median of its distribution on the subjective scale. Hence, the standard error of the scale value is 0.08. The probable error of the scale value is consequently 0.05 scale units. This is a very satisfactory reliability for the scale-values which are recorded to one decimal in our table.

An objective measure of irrelevance is based on the consistency of the actual voting of 75 Filipino students. This criterion is constructed as follows: Suppose that a statement of low ambiguity is properly scaled at point 9 (favorable to America). If a subject has an attitude which is also scaled properly at the point 9, then we should expect him to check that statement. Another subject who is scaled at point 4 (unfavorable to America) should be less likely to check that statement. Following Thurstone's index of similarity, a number of statements were eliminated from the final scale.

We have brought to bear on the selection and allocation of the statements two objective criteria, namely, the criterion of ambiguity, the Q-value, which is based on the degree of uniformity in the sorting of the statements, and the criterion of irrelevance, which is based on the consistency of the actual voting or endorsing. These procedures were carried out on two different groups of Filipino students selected at random.

In selecting the statements to include in the final scale they were so selected as to constitute a more or less uniformly graduated series of scale-values. When the complete scale was divided into two forms an attempt was made to make them equal in scale-value of statements included, and a more or less equal division of statements according to subject content. Thus each form includes an approximately equal number of statements in regard to American morals and ethics, living conditions, race prejudice in the United States, religion in America, United States' government policies, courts of justice, treatment of foreigners in the United States, League of Nations, Monroe Doctrine, tariff policies, immigration problems, student life, and general estimates of America's contribution to the world.

The two forms were sent to over one hundred Filipino students out of a total of approximately 600 Filipinos who are studying in American colleges and universities. Scales were sent to every sixth person listed in the Filipino Student Directory. There was nothing in the form which told them that this was a measure of Filipino attitudes, as we did not wish to arouse a national consciousness. It was simply stated that it is desirable to find out what different people think about various aspects of American life, with the hope that when we determine more accurately the opinions which people hold we will have made progress toward improving conditions and relationships in America. Seventy-five per cent of the scales were filled out and returned.

On the basis of the returns the reliability of the two forms is shown in a correlation of .92 with a probable error of .012. The mean score for the entire group is 6.3, which is in the neutral position since scores with a scale-value of 1 denote strong prejudice against the United States and scores with a scale-value of 11 show strong favorableness toward America. The range of individual scores was from 2.5 to 8.5.

Various degrees of prejudices have been studied in relation to such factors as length of residence in America, geographical distribution, extent of self-support. A correlation of $.50 \pm .053$ was found between prejudice against the United States and length of residence here. This may be due to the fact that they come to this country with very high expectations and go through a period of disillusionment after they arrive. This is the explanation offered by several fair-minded Filipino students.

In regard to geographical distribution of students, 10% are studying in Eastern colleges, 34% in Middle-Western colleges, and 56% in Western

colleges. The mean score for those from the East is 7.6, from the Central schools 6.7, and from Western schools 5.9. Although these differences are small they are significant enough to suggest that students in the West are more prejudiced against America than those from the East and Central states, perhaps due to stronger prejudice against Orientals in the West.

In regard to self-support 63% of the students are wholly self-supporting; 25% earn about 75% of their expenses, and 12% earn 50% or less. Only 5% of the students were not earning any of their expenses. Roughly speaking, the students who are not employed are most favorable to the United States, but among the self-supporting students those who earn at least 75% of their expenses are more favorable to America than those who earn 50% or less.

Forty-seven per cent of the students have Filipino roommates, 30% have no roommates, and 23% have American roommates. There is no correlation between degree of prejudice and nationality of roommate. In regard to living abode, 82% live in private homes, and 18% in boarding houses. Not a single Filipino student responding lived in a college dormitory or fraternity. In regard to college classification, 39% were underclassmen, 47% were upperclassmen, and 14% graduate students. There is no significant difference in scores according to student classification.

The students were asked to state the nationality of six of their best friends. Filipinos were mentioned 203 times, Americans 90 times, and other nationalities 128 times. Although the chances of forming friendships with persons of American birth are much greater than with other nationalities, due to greater numbers in the general student population, more friendships were reported with other nationalities than with Americans. This seems to suggest that foreigners constitute a somewhat self-contained community, and have more in common though from widely separated countries than do foreigners and Americans. Or perhaps there is an exclusion of foreigners from the social life of American people. The nationalities which ranked highest in this respect were Japanese, Chinese, German, French, Italian, Mexican, Irish, and Spanish.

The author does not claim any significance to the latter parts of the treatment of results except the general interest which may be found in an attempt to study various degrees of prejudice in relation to general factors.

Taylor University
Upland, Indiana

THE COMMUNITY OF IDEAS IN NEGROES*

DOROTHY A. GARDNER

Because of the fact that so many of the phases and institutions of American life are shared in common by the white and the Negro populations of this country, persons interested in meeting the various social problems growing out of this association are becoming increasingly interested in the psychology of the American Negro. Differences in his appearance, social background, and racial heritage are so extreme that one naturally expects to find corresponding differences in the Negro's mental disposition. For this reason, studies in race psychology carried on during and since the War have concentrated on the Negro as their most popular subject with the purpose of discovering such similarities and differences as may exist between his and other races, particularly the white. These experiments seem to indicate that as regards intelligence the Negro is inferior to the white, but this, after all, may be due to the conditions of nurture.

The present study is concerned with determining the character of his ideational make-up in comparison with that of the white; in other words, we wish to discover the nature of the ideas of which his thinking is composed and to determine the degree of their correspondence with the ideas of whites (6). As previous studies (1, 4, 5, 2) on the subject of community of ideas have failed to reveal significant sex differences in the frequency of various categories, this phase of the subject is not considered in the present experiment. We shall confine our attention rather to a direct comparison between the total responses of each racial group and the tendency of each group to neglect certain categories.

The data upon which the study is based were derived from a free continuous association test which was given to 98 Negroes and 146 whites at Port Arthur, Texas.¹ The Negro subjects were presumably full-blood and of approximately the same educational level as the whites. The tests consisted in writing as many words as possible in 5 minutes, the subject being instructed to write down each word as it presented itself in his thought. The record sheets on which the subjects' reactions were written under the test conditions were taken in hand and the "ideas" classified by one person under the categories used by Jastrow (4), Garth (2, 3), and others. Of the 146 white students, 98 were chosen at random for comparison with the Negroes. The 48 additional whites were used as a further control. The results of this classification are shown in Table 1.

Before a direct comparison of results could be made it was necessary to

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¹The writer begs to acknowledge obligation to Miss Helen Gladys Mercer for assistance in obtaining the data for this study.

TABLE 1

	Percentages			Zero scores	
	White I	White II	Negro	White I	Negro
	98	Basis	98	98	98
	cases	cases	cases	cases	cases
Animal kingdom	831	763	795	17	24
Wearing apparel	461	583	224	39	68
Proper names	397	641	942	45	42
Verbs	1202	1413	2062	14	3
Implements	472	259	137	28	68
Interior furnishings	252	331	135	36	68
Adjectives	893	1043	1121	18	12
Foods	176	239	127	59	74
Vegetable kingdom	131	119	48	75	85
Abstract terms	200	97	279	50	60
Buildings and materials	546	461	169	26	69
Parts of body	264	331	142	56	76
Miscellaneous	364	267	510	32	25
Geographical	400	279	272	25	53
Mineral kingdom	105	53	5	83	96
Meteorological	164	157	160	62	66
Stationery	280	287	108	39	73
Occupations	217	171	208	50	57
Conveyances	194	113	72	52	83
Educational terms	753	483	765	17	26
Other parts of speech	1042	1305	1109	25	22
Arts	70	75	45	75	84
Amusements	126	69	110	66	70
Mercantile	110	139	55	64	85
Kinship	150	114	199	72	73
	9800	9800	9800		

reduce the responses of each subject for each category to a percentage of his total number of responses. The percentages of all subjects in each group were then added and are presented in Table 1 as total percentages for each category.

In making the study the following lines of comparison suggested themselves:

1. Do the results of the test show any significant similarities or differences between the various groups when all the categories are considered?
2. Do the Negroes appear disposed to prefer one category above another in any sense differently from the whites?
3. Is there any indication of similarity or difference regarding the tendency of the different groups to neglect the same categories?

TABLE 2

Ranks, white I against Negro	$r=+.82$
Ranks, white total against Negro	$r=+.82$
Ranks, white I against white II	$r=+.90$
Zero scores, white I—Negro	$r=+.83$

4. Does a comparison of the whites of Group I with the whites of Group II in these respects show any degree of correspondence with the results obtained from comparison between white and Negro subjects?
5. In how many categories does the Negro exceed the white performance and in how many is he behind?

Let us consider first the question of the general correlation between the Negro performance and that of the white. In order to determine the degree of this correspondence or lack of it the total percentages for each category for each racial group were ranked in the order of preference and comparisons made between the various groups based upon the difference in the ranking given each category by the two groups being compared. Such a comparison of the white total with the Negro yielded a correlation of $+.82$ which is fairly high and shows a definite positive tendency. The correlation of the white Group I with the white Group II was $+.90$. When the white Group I was compared with the Negro a correlation of $+.82$ was derived, the same as for the white total against the Negro.

This evidence of similarity between the two races is further shown by a comparison of the various groups regarding the tendency to slight certain categories in the test. The method used was essentially the same as that outlined above except that the categories were ranked this time in the order of their preference as shown by the number of zero scores given each category. The resulting correlation between the white Group I and the Negro was $+.83$, approximately the same as when the total percentages were used as the basis of comparison.

As regards the disposition of the various groups to prefer certain categories above others, the study seems to indicate a greater preference on the part of the Negro for the three categories of abstract terms, kinship, and proper names. The whites, on the other hand, seem more disposed than the Negroes to respond in terms of buildings and implements. The Negro gave three times as many proper names.

A further line of comparison consisted in determining the number of categories in which the Negro performance exceeded that of the white and the number in which it noticeably fell below the white. The results of this phase of the study showed that the Negroes were excessive in 8 categories, but considerably behind in 11.

Finally, in summing up the results of the experiment it may be said that the two white groups were found to differ as much in all of the above respects except the correlation of the total percentages as did the white and Negro groups.

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University of Denver
Denver, Colorado

BOOKS

MELANIE KLEIN. *The Psycho-Analysis of Children*. New York: Norton, 1932. Pp. 393.

This amazing document brings home to the reviewer his own essential befuddlement in a more inescapable way than has been his privilege in a long time; and he is so arrogant as to assume that this is not wholly an individual complex, but the reaction upon an individual of a state of affairs that has in it somewhere an indication that something is very, very wrong in Denmark.

It has been the reviewer's custom to ease off the scandalized comments of his non-psychoanalytic friends (logically, not ethically scandalized) by referring lightly to the inevitable garbling and misunderstanding of an author's meaning when reinterpreted by clever summarizers having no familiarity with the phenomena in question. The recent animadversions of Jastrow (*The House that Freud Built*), for example, are effectually disposed of by this route; Jastrow has not troubled to inform himself regarding the subject matter of his discourse, though he has displayed his characteristic acumen in discussing what he inferred from other discussions to be this subject matter. But it won't work here. Mrs. Klein is, so to speak, one of the makers of psychoanalysis; her book has been eagerly anticipated as authoritative and epoch-making, and appears under the spiritual aegis of Abraham, Jones, Ferenczi, and Freud himself. Neither does she suffer greatly from the customary Aquinism of many analytic writers, for to balance the few inevitable "demonstrations" via citation from the patristic writings there are a goodly number of instances of the formula: "Freud believes . . . but it has been my experience . . ."

Notwithstanding all which, the book is, if taken at its face value, simply incredible at many important point—points which alternate with insights that, if not clear, are certainly profound, and in an important sense true. And therein lies the befuddlement—it is incredible that the work be true; and it is incredible that it be otherwise. Among other considerations, it rests upon literally thousands of hours more painstaking and controlled observation than almost any other formulations in psychology.

The full elucidation of this riddle should be the life work of some extremely competent individual—for probably nothing in the world is of greater importance than the advances in human happiness that might be made possible if researches in this field could be, first, stated comprehensibly, and, second, demonstrated. Partial elucidations have been made by both psychoanalysts and psychologists—both obviously naïve: the analysts have it that these matters cannot be understood by the uninitiated; the psychologists, that the analysts are merely indulging in wild speculations and

have long since lost touch with the real world. The kernel of truth in the former view appears to be that the man who has never seen a given phenomenon and who has an aversion to seeing it is a poor judge of the fact of its occurrence; in the latter, that while esoteric logics may fittingly be a subject of study, there can hardly be more than one logic whose function is adjustment to the real world—ergo, that he who would be understood must use the normal medium of communication.

The reviewer hesitates, but is forced by the circumstances of being a reviewer, to offer elucidative fragments of his own. One such is that the logical aspects of psychoanalysis have been very much beclouded by a combination of medical thought and German metaphysics. It is sufficient to compare the writings of Freud with those of, say, Ella Sharpe, to perceive that the thought forms of the two are essentially different; the one is fascinating and illusorily clear, the other straightforward and matter-of-fact, telling in every-day language what was done and why, and what inferences were drawn therefrom. A further fragment is that few Freudians are entirely clear in their own minds as to the differences between a body of data, inferences from the data, and speculations as to the significance of the data *sub specie aeternitatis*. We open Mrs. Klein's book at random and read:

"A typical boys' game, and one which brings out the masculine components very clearly, is playing with carts, horses and trains. This symbolizes forcing a way into the mother's body. In their play boys enact over and over again, and with every kind of variation, scenes of fighting with their father inside her and copulating with her."

It is naïve to "throw this out of the window," as has sometimes been suggested as a suitable disposition of the Freudian doctrines by outraged academic psychologists; it is equally naïve to take it at face value. Then how is one to take it? Evidently as a confused and much condensed fusion of a large number of observations of at least two sorts (the boys have been observed playing with the carts, and at least some of them have—spontaneously?—offered verbal or other material which the analyst regards as warranting the inference) with an inference (the second sentence) which is not presented as an inference and whose connection with the supporting observations is withheld. The result is unpleasantly dogmatic and, as a generalization, incredible, although it is entirely probable that these associations are demonstrable in some boys.

A third elucidative fragment is the suspicion that the orthodox psychoanalytic writer, following Freud in *Totem and Taboo*, subscribes with entire scientific naïveté to a crude Lamarckism. Traces of this may be seen in the passage above in the references to copulation, but a better example is the attribution to a six-year-old of certain elaborate fantasies involving semen; it is unlikely that the child had had any experience of semen, vicari-

ous or otherwise—though on this point Mrs. Klein is characteristically silent. It would therefore seem that it must be assumed to be known “unconsciously,” or to be a “racial memory.”

Still another possibility is that the analysts are speaking in a kind of shorthand, made necessary by the fact that their original observations are so voluminous that they must be condensed even for statement. Thus the word “sex” appears in many contexts to be an enormously amplified concept derived by the backward extrapolation of the actual observations. In the same way, one is driven to suppose, as in the above observations on copulation, that in some way known only to the elect this word of usually rather limited connotation is somehow being used to indicate a more generalized activity, e.g., all aggressive behavior on the part of the father toward the mother. If not, and if the observations are intended, as their form indicates, to be general—there are always so many *ifs*—how is one to understand the cases where there has been literally no experience of copulation in the ordinary sense? By the Lamarckian hypothesis, perhaps?

A last consideration has to do with the old bugbear of suggestion. The child is negative; Mrs. Klein “interprets.” (It is worthy of note that herein she follows the best traditions of Freud, whose reported early analyses contain an appalling amount—from the modern standpoint—of lecturing on psychoanalytic theory; whereas it has been the experience of a number of analysts that at least some children analyze quite well with a passive analyst, while the resistance of adults is almost impregnably fortified by “explanations.”) Not only does she interpret, but her interpretations are “deep-going,” unsublimated, and completely dogmatic. Is there, then, any assurance that the later inferences as to the father fighting with the little boy inside the mother, etc., do not stem directly from the earlier provision of a similar ideology by the analyst? If there is, does not the author owe it to the ordinary canons of scientific research to tell us somewhere what this assurance is?

The first seven chapters, on “The Technique of Child Analysis,” are from the standpoint indicated above considerably freer from criticism than the last five, on “Early Anxiety-Situations and Their Effect on the Development of the Child,” which constitute an attempt to carry forward the main structure of analytic theory. There are, for instance, a great many citations of what actually does occur in the sessions, and, as might be expected, against this factual background many of the author’s inferences appear thoroughly reasonable. Even in the second part, when the reader can supply from his experience the missing material, some of the inferences reduce to comprehensibility; this reminds one of the contention that the material is esoteric and incomprehensible to the uninitiated, but the obvious retort is that anything is incomprehensible to the uninitiated—the manifest function of exposition is to initiate the uninitiated by supplying the missing elements

of his experience. Among these newer and more comprehensible points of view are that the Oedipus conflict is initiated by oral deprivations, followed by retaliatory hate and anxiety due to apprehended reprisals (the mechanism of which basic law of talion continues as mysterious as ever); and that the feminine equivalent of "castration" (penis injury) fear is fear of injury to the interior of the body.

In closing it will be in order to indicate a few very simple ameliorants for the bad muddle between psychoanalysis and the rest of psychology—ameliorants the reiteration of which might well become a sort of *Karthago delenda est* for such persons as feel that it is a regrettable waste of human effort for a body of intelligent men to continue working at cross purposes and in mutual isolation from other equally intelligent men whose subject matter is essentially the same. First, adequate records must be kept of the entire proceedings and so far as ascertainable of the history of the subject. Second, adequate criteria must be elaborated for the presence and degree of the important variables. Third, the terminology must be defined as rigorously as possible and brought into line wherever possible with the terminology of the rest of psychology. Fourth, the inferences bridging the gap between observation and formulation of principles must be kept explicit and examined by logically sophisticated persons. Fifth, the free-fantasy method, which is the great methodological contribution of psychoanalysis and which has succeeded in controlling probably the most important of all psychological variables—the attitude—must be preserved and if possible improved.

The growing point of civilization is in the social sciences; the growing point of the social sciences is in psychology; and the growing point of psychology is in child analysis. This is the most important book ever written about child analysis, because it has been written by the most capable technician now alive. But it is too logically naïve, condensed, and confused to be a wholly trustworthy guide. Another half century, perhaps.

RAYMOND ROYCE WILLOUGHBY

Clark University
Worcester, Massachusetts

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TRENDS OF THE VOTER'S MIND*¹

From the Institute of Human Relations, Yale University

EDWARD S. ROBINSON

A newspaper man met one of his Republican political friends shortly after the recent presidential election and asked for an explanation of the outcome. The politician said simply: "We couldn't expect to beat 15 million unemployed." This little story represents a sweeping theory of public political judgment—the theory that the swing toward one candidate or another is to be explained in terms of some large social factor which cannot be seriously modified by political speeches. This is the conception that public opinion is controlled entirely from the outside by the general force of impersonal economic events. A similar idea is represented by those Socialists and new-party advocates who hold that the swing from Hoover to Roosevelt represented nothing more than a mild disturbance of public complacency. They say that the most striking characteristic of our current American political life is the absence of any genuine competition among well-developed systems of political ideas.

As a psychologist, I have long been skeptical of the cocksure judgments of public stupidity which have been so fashionable since the World War. Not that I have had any faith in the kind of public omniscience represented by some of the eighteenth-century philosophers, but I do feel that our present tendency to dismiss the public mentality as a thing of extreme simplicity is probably far from the truth.

In the belief that there is much to be learned from impartial examination of the voter's mind, I placed before the National League of Women Voters the proposal that the League undertake a broad study of the political opinions of the partisans of the more important presidential candidates. The League decided that a factual study of this sort was an undertaking which fell definitely within the sphere of its legitimate interests. We were able, therefore, in October, 1932,

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to secure from 8419 men and women, scattered through 37 states, reactions to the principal presidential candidates and to 24 political statements typical of platform propositions and of the speeches of the campaign. Through the state presidents of the League, volunteer vote-solicitors were recruited. Questionnaires were delivered in person to voters of known occupations. Most of these voters were not, themselves, members of the League of Women Voters. After the unsigned questionnaire had been filled in by the voter it was placed in an unsigned envelope, sealed, and handed back to the solicitor who had previously assured the voter that the envelope would not be opened until it was back in the main office where there was no possibility of the voter's identity being discovered.

The voter was requested among other things to designate the candidate for whom he expected to vote in November, 1932. Following this, there appeared on the questionnaire the 24 political statements. The voter was instructed to express his opinion or lack of opinion by placing a mark under *Yes*, *Doubtful*, or *No*, following each statement.

In drawing up a list of statements representative of the political ideas of a campaign one is faced with two alternatives. Having determined that an issue like prohibition repeal, or tariff reduction, or unemployment relief is involved, one can attempt to make an academically correct wording of the issue. On the other hand, one can use that statement of the issue which is actually being employed by politicians. There are two objections to securing public reactions to academically correct political propositions. In the first place, it is not at all clear that an academically correct statement on prohibition or tariff or any other important issue could be obtained short of a book or long article, and it is doubtful whether such a statement would be regarded as strictly correct by anyone besides its author. In the second place, it seems highly improbable that the ideas which are important factors in the turn of the vote are ideas of an academic type. For the purposes of the present study it was decided, therefore, to take literal or practically literal quotations from party platforms and campaign speeches, even though the meanings of such statements might seem highly questionable to a critical student of politics or economics. As a matter of fact, some of the statements current during the campaign, and therefore subject to use in this investigation, were reasonably definite in meaning, while others were perhaps purposely ambiguous. For example: *The 18th amendment should be re-*

pealed and *Governmental expenditures should be drastically reduced* are quite definite. On the other hand, *The tariff should be used to protect the American workman, farmer, and business man from foreign competition* and *The currency of the United States should be kept sound at all hazards* are subject to a variety of interpretations. Yet such propositions as these latter two are as prominent in political argumentation as are those of clearer logical import. They deserve a place, therefore, in any study of political judgment.

We limited ourselves to twelve prominent issues of the campaign, and we used two statements on each issue. In some cases these two statements were clearly opposed. This was true, for example, of those dealing with the payment or non-payment of the soldiers' bonus. In other cases we simply employed the statements of two of the parties even though the exact difference between the parties was somewhat doubtful. This was the state of affairs within the issue of prohibition repeal. The Democrats emphasized repeal itself; the Republicans emphasized the safeguards to be adopted with repeal.

In launching a study of public opinion one is confronted with the question as to what section of the public should be examined. The most significant group for our purpose would have consisted of the entire public actually casting a vote in November, or else an adequate sample of that public. Obviously, there was no chance of including all the voters, and, unfortunately, it was also impracticable to aim at an adequate sample of the voting public because of the difficulty of reaching all classes of that voting population and of weighting these classes according to their actual numerical importance in the election. Furthermore, some of the classes that vote would have been too ignorant to have understood our questionnaire.

As an alternative to the aim of getting a picture of the voting population as a whole, we decided to study political opinion in five social classes, these classes being modifications of the occupational groupings used in the Report of the Fourteenth Census of the United States, Vol. 4, 1920. Our own groupings were as follows:

- Group 1. Professional
- Group 2. Semi-professional and managerial
- Group 3. Clerical, skilled and semi-skilled trades, retail and minor business, and minor clerical positions
- Group 4. Farmers
- Group 5. Factory workers

TABLE 1
DISTRIBUTION OF VOTES—1932

	Professional	Semi-professional and managerial	Clerical and skilled trades	Farmers	Factory workers
<i>Men</i>					
Hoover	706 (60%)	653 (68%)	575 (56%)	242 (51%)	117 (51%)
Roosevelt	336 (29%)	258 (27%)	397 (39%)	214 (45%)	99 (43%)
Thomas	146 (12%)	47 (5%)	50 (5%)	18 (4%)	13 (6%)
Totals	1188	958	1022	474	229
<i>Women</i>					
Hoover	844 (59%)	637 (64%)	1023 (64%)	162 (56%)	98 (41%)
Roosevelt	331 (23%)	242 (24%)	474 (29%)	117 (41%)	113 (47%)
Thomas	260 (18%)	109 (11%)	103 (6%)	8 (3%)	27 (11%)
Totals	1435	988	1600	287	238
Total men—3871					
Total women—4548					

A married woman was considered a member of the group indicated by the husband's occupation.

The vote-solicitor was furnished with a sheet on which there were listed for each occupational group most of the individual occupations, such as accountant, druggist, or locomotive engineer, belonging to a given group. These solicitors were instructed to secure votes from several occupational groups except in the case of certain solicitors who concentrated on farmers or factory workers. Unfortunately, the samples from these last two groups are much smaller than one would have wished.

Table 1 presents the distribution of preferences for 1932 candidates by occupational groups and by sexes. One is struck in the first place by the substantial majorities given to Mr. Hoover. A possible interpretation of this finding is that our vote-solicitors were generally of Republican complexion and that they naturally found it easier to reach voters of Republican sentiments. There is, however, another possibility. According to the census figures as to the percentage of the total gainfully employed found in each occupational class, those three of our classes which give Hoover such a clear majority represent only about half of the total of gainfully employed. When we consult the farmer and factory worker groups we see a marked reduction in the preference for Hoover.

Other indications of the table are: (1) The percentage of votes cast for Thomas is definitely highest in the professional class and lowest among the farmers. (2) The percentage of votes cast for Thomas is higher for women than for men. (3) The percentage of votes cast for Roosevelt is higher for men than for women. In regard to the Thomas vote we may raise the question whether there can be an important Socialist movement in this country so long as the party makes its principal impression upon high-brows and women. Support by the intellectuals is frequently necessary for progressive and revolutionary forces, but it is also necessary to make some impression upon those in whose interest a given political movement is taking place. The question raised by the difference between feminine and masculine votes for Roosevelt may find its answer in the plain repeal position of the Democrats. More evidence upon this point will be offered presently.

CANDIDATES AND ISSUES

The primary purpose of the present study was to reveal such relations as may have existed between the candidate preferred by a given

voter and the political propositions which that voter was willing to accept or reject. Did those who voted for Roosevelt actually accept the planks of the Democratic platform?

A political proposition, such as those in our questionnaire, may be said to represent the stand of a given party if a majority of the members of that party vote *Yes* on it while less than a majority of the other parties approve it. Conversely, a proposition may indicate the negative stand of a party if a majority of its members alone vote *No* on it. When a party stands alone in approving or disapproving a proposition we may say that that proposition is a *qualitative* characteristic of the party. It is also possible for a party to be distinguished by the fact that it gives a majority of *Yes* or *No* votes to a proposition which is also approved or disapproved with smaller majorities by one or both other parties. In such a case this proposition may be thought of as a merely *quantitative* characteristic of the party.

The supporters of Hoover are marked by their approval of seven propositions contained in our questionnaire. See Table 2, which gives the percentages of *Yes* votes distributed by candidate, occupation, and sex.

The most nearly qualitative issue in this list is the first one, which deals with the limitation of federal aid. *Federal aid in the economic crisis should be confined to state and local governments and to government-supervised institutions like banks and railroads.* Most of the groups of Hoover voters give this proposition a majority of *Yes* votes, while none of the other groups gives more than 54% favorable reactions. There seems to be both a class and sex difference here. The men among the Hoover supporters are more in favor of limiting aid than are the women, and the higher occupational groups are more in favor of such limitation than are the lower.

Turning to the second proposition in the table—*The Federal Government should protect those states which wish to retain prohibition*—we find all parties, all occupations, and both sexes giving a majority of favorable votes. Such a result is interesting in that a good deal of doubt about the political wisdom of the statement was raised when it was first put forward by the Republicans. This proposition is an excellent example of a merely quantitative issue; all parties take the same general stand, but one party—in this case the Republican—is pretty clearly most definite in that stand.

Both Hoover and Roosevelt voters give majorities in favor of the proposition that *The tariff should be used to protect the American*

TABLE 2
HOOVER VOTERS FAVOR
Percentage of *Yes* votes

	Professional	Semi-profes- sional and managerial	Clerical and skilled trades	Farmers	Factory workers
<i>Federal aid in the economic crisis should be confined to state and local governments and to government-supervised institutions like banks and railroads.</i>					
<i>Men</i>					
Hoover	72	72	66	52	56
Roosevelt	41	54	45	40	43
Thomas	30	32	36	44	46
<i>Women</i>					
Hoover	60	60	53	48	40
Roosevelt	41	45	41	30	27
Thomas	29	28	24	50	22
<i>The Federal Government should protect those states which wish to retain prohibition.</i>					
<i>Men</i>					
Hoover	81	77	78	80	67
Roosevelt	70	70	69	64	61
Thomas	72	79	78	78	54
<i>Women</i>					
Hoover	80	79	75	80	69
Roosevelt	62	66	65	75	51
Thomas	63	72	71	63	63
<i>The tariff should be used to protect the American workman, farmer, and business man from foreign competition.</i>					
<i>Men</i>					
Hoover	81	88	91	91	97
Roosevelt	48	67	74	72	81
Thomas	20	45	50	56	70
<i>Women</i>					
Hoover	78	81	84	83	82
Roosevelt	44	58	62	67	70
Thomas	24	27	35	63	96
<i>The farmer should adjust his production to the laws of supply and demand.</i>					
<i>Men</i>					
Hoover	75	78	71	66	72
Roosevelt	67	70	66	54	56
Thomas	68	62	48	61	77
<i>Women</i>					
Hoover	72	74	68	61	58
Roosevelt	62	69	59	54	41
Thomas	57	64	60	25	56

TABLE 2 (continued)

	Professional	Semi-profes- sional and managerial	Clerical and skilled trades	Farmers	Factory workers
<i>The Government should keep out of business.</i>					
<i>Men</i>					
Hoover	69	83	70	69	64
Roosevelt	52	71	63	49	47
Thomas	13	19	18	28	15
<i>Women</i>					
Hoover	49	58	48	41	45
Roosevelt	36	56	44	44	27
Thomas	14	17	12	38	18
<i>The currency of the United States should be kept sound at all hazards.</i>					
<i>Men</i>					
Hoover	95	96	94	95	95
Roosevelt	82	88	91	85	85
Thomas	65	72	70	77	61
<i>Women</i>					
Hoover	92	94	93	92	88
Roosevelt	84	89	87	86	83
Thomas	57	63	68	75	82
<i>The Government should support only those veterans disabled during the War.</i>					
<i>Men</i>					
Hoover	91	91	85	88	72
Roosevelt	86	84	77	80	75
Thomas	87	85	72	89	77
<i>Women</i>					
Hoover	88	87	83	77	75
Roosevelt	82	85	75	70	57
Thomas	84	83	73	76	55

workman, farmer, and business man from foreign competition, though the Republican majorities are substantially larger than those of the Democrats. It is interesting, however, that only the professional men and women among the Roosevelt supporters fail to give a majority of *Yes* votes to this proposition. Our complete data also show that, though the Thomas supporters do not favor this statement, it is only the professional class among the Socialists which gives a majority of *No* votes.

The farmer should adjust his production to the law of supply and demand is another proposition winning general favor. Because of its

laissez-faire flavor, one is prepared to find this statement receiving its greatest acceptance from the Hoover voters. However, even the Thomas voters are favorably disposed toward the statement. True, there are two instances where less than a majority of *Yes* votes are given by the Thomas partisans, but reference to our complete records shows that even in these instances there was as much doubt as actual opposition on the part of the Socialist vote.

The Government should keep out of business is definitely accepted by the Hoover men and by the three upper classes of Roosevelt men, but only in the semi-professional and managerial group do the women give as much as a bare majority of *Yes* votes.

The currency of the United States should be kept sound at all hazards is an almost literal quotation from the Democratic platform. According to our results this proposition pleased all parties, but was most acceptable to the Republicans.

The Government should support only those veterans disabled during the War is one of the most popular statements on our list. Only among women factory workers is the sentiment lukewarm. The Hoover voters differ from the others only in giving generally larger majorities of favorable reactions.

The hearty and widespread approval of this last proposition is interesting in light of the Administration's action in this direction. If politicians had searched among the issues of the last campaign to find one for which majority opinion was most definite, they could not have picked a safer bet than this one regarding the limitation of veterans' relief. Was the obvious political fear of this question due to an inability on the part of politicians to estimate the actual state of public opinion? Or was it due to the fact that, although they knew the nature of majority opinion, these politicians were more responsive to the organizations through which the minority opinion was able to express itself?

Those who vote for a given candidate may be characterized by the propositions they reject as well as by those they accept. Table 3 gives the percentages of *No* votes on three propositions which the Hoover partisans clearly did not like.

The Federal Government should extend financial aid directly to private citizens is rejected by a majority of the Hoover men except among the factory workers, and by generally smaller majorities among the Hoover women. In the other two parties there are only scattered

majorities against this statement, so that we seem to have here something like a qualitative Republican position.

What this country needs is a liberal policy in issuing money has small opposition majorities among the three upper classes of Hoover men and scarcely majority opposition in the two upper classes of Hoover women. None of the other groups shows a majority against this proposition, though the consultation of our complete data shows also a complete lack of majorities in favor of this statement. In other words, this statement expressed an idea which was definitely opposed

TABLE 3
HOOVER VOTERS REJECT
Percentage of *No* votes

	Professional	Semi-profes- sional and managerial	Clerical and skilled trades	Farmers	Factory workers
<i>The Federal Governmental should extend financial aid directly to private citizens.</i>					
<i>Men</i>					
Hoover	86	83	70	67	49
Roosevelt	55	60	48	43	40
Thomas	40	51	30	55	15
<i>Women</i>					
Hoover	77	74	66	54	51
Roosevelt	58	55	44	39	18
Thomas	47	49	48	37	15
<i>What this country needs is a liberal policy in issuing money.</i>					
<i>Men</i>					
Hoover	65	65	53	36	40
Roosevelt	46	35	26	18	23
Thomas	30	42	28	28	24
<i>Women</i>					
Hoover	51	51	40	26	26
Roosevelt	32	24	22	17	11
Thomas	38	32	27	38	22
<i>All war debts should be immediately canceled.</i>					
<i>Men</i>					
Hoover	72	73	80	81	79
Roosevelt	60	72	77	73	71
Thomas	18	44	44	33	46
<i>Women</i>					
Hoover	63	67	69	71	75
Roosevelt	54	63	63	54	61
Thomas	21	19	23	50	44

by certain of the Hoover groups, while the sentiment of others was divided among *Yes*, *No*, and *Doubtful* in such a way as to give no marked majorities to any of these three attitudes.

Both Hoover and Roosevelt voters consistently reject the statement that *All war debts should be immediately canceled*. The Republican opposition is, however, clearly the greater and it is more marked among the men than among the women. While the Thomas voters do not give majorities against the proposition, reference to the *Yes* votes shows that they also fail to give consistently favorable majorities there.

We are now in a position to review the attitudes typical of the supporters of Mr. Hoover. The limitation of Federal aid is the only proposition upon which the Hoover voters take a favorable stand by themselves. The clearest case of a lone negative stand is in what seems to be a converse statement of the same issue—the statement that financial help should be extended to private citizens. In the upper occupational classes the Hoover supporters also take a lone stand against a liberal policy in issuing money. It is interesting, and possibly of some significance, that the three points on which the Hoover voters are most definitely in opposition both to the Roosevelt and to the Thomas voters deal with matters of financial policy.

The Hoover voters are further characterized by accepting with larger majorities six propositions also accepted by one or both other parties, and by rejecting more definitely one statement which is also rejected by the Roosevelt supporters. It thus would seem that the Republican position is marked more by the degree of acceptance or rejection of political propositions than by any unique political ideas which it represents. This fact probably accounts for the common belief that there is no fundamental difference between the positions of the two leading parties. Those who have expressed this belief have probably given little attention to such differences in degree as those which appear in our tables. Yet such difference may give the key to the more subtle factors in political temperament.

Of the 24 propositions in our questionnaire, 10 found the Hoover voters either supporting or rejecting these propositions alone, or supporting or rejecting them more definitely than did the Roosevelt or Thomas voters. The Roosevelt voters offer a marked contrast. The only proposition which was more decisively favored by the Democrats than by others was the straight repeal plank, *The 18th Amendment should be repealed*. (Table 4.)

The Democrats are decidedly in favor of the statement that *The tariff should be substantially reduced in order to encourage an increase in our foreign trade*, but the Socialists are perhaps equally in favor of this proposition. Four out of five classes of Roosevelt men lead in approving tariff reduction, but the Roosevelt women fall behind the Socialist women in this regard in four out of five classes.

If we return to Table 2, which contains the propositions favored by the Hoover supporters, we find that in every case but the first, and possibly the fifth, the Democrats are on the same side as the Republicans, though not so whole-heartedly. They also agree with the Republicans in favoring the proposition: *The United States should maintain an army and navy at least equal to that of other great powers*.

Of the three propositions definitely rejected by the Hoover voters (Table 3), the third, which advocates immediate cancellation of the war debts, is also rejected by the Roosevelt voters, but with some-

TABLE 4
ROOSEVELT VOTERS FAVOR
Percentage of *Yes* votes

	Professional	Semi-profes- sional and managerial	Clerical and skilled trades	Farmers	Factory workers
<i>The 18th Amendment should be repealed.</i>					
<i>Men</i>					
Hoover	50	61	57	30	66
Roosevelt	84	85	87	70	88
Thomas	54	72	68	44	77
<i>Women</i>					
Hoover	35	48	36	25	51
Roosevelt	70	74	76	50	74
Thomas	57	51	48	25	63
<i>The tariff should be substantially reduced in order to encourage an increase in our foreign trade.</i>					
<i>Men</i>					
Hoover	23	20	19	19	26
Roosevelt	80	73	68	63	59
Thomas	92	66	54	55	54
<i>Women</i>					
Hoover	29	27	27	22	35
Roosevelt	77	74	68	69	50
Thomas	82	79	73	50	70

TABLE 5
THOMAS VOTERS ACCEPT
Percentage of *Yes* votes

	Professional	Semi-profes- sional and managerial	Clerical and skilled trades	Farmers	Factory workers
<i>The United States should lead the way to peace by reducing her army and navy.</i>					
<i>Men</i>					
Hoover	34	26	25	32	20
Roosevelt	37	32	27	30	25
Thomas	77	62	50	44	54
<i>Women</i>					
Hoover	40	35	29	17	18
Roosevelt	42	44	28	29	23
Thomas	75	81	70	50	44
<i>Railroads, power companies, and banks should be owned by the Government.</i>					
<i>Men</i>					
Hoover	8	7	13	12	32
Roosevelt	21	17	28	33	39
Thomas	67	60	76	61	69
<i>Women</i>					
Hoover	16	12	18	20	24
Roosevelt	30	22	30	36	36
Thomas	66	63	57	38	81
<i>The United States should join the World Court.</i>					
<i>Men</i>					
Hoover	60	45	33	32	25
Roosevelt	59	45	35	35	25
Thomas	83	77	60	67	54
<i>Women</i>					
Hoover	66	61	50	41	31
Roosevelt	68	67	48	41	21
Thomas	90	91	81	50	37
<i>The United States should recognize Soviet Russia.</i>					
<i>Men</i>					
Hoover	29	21	19	18	18
Roosevelt	56	33	34	31	28
Thomas	89	83	78	61	77
<i>Women</i>					
Hoover	24	17	12	17	8
Roosevelt	38	33	26	29	22
Thomas	84	83	74	50	78

what smaller majorities. In the case of the other two propositions rejected by the Republicans, the Democrats fall between the Republicans and the Socialists in one of them.

Those who consider that political virtue consists mainly in having definite opinions may feel that such results as these place the Democrats in a weak position. Yet this tendency to occupy a position at the right, at the left, or in the center, according to the issue, may be essentially characteristic of political liberalism.

We were able to discover not more than three propositions for or against which the Hoover voters took a lone stand, and no propositions on which the Roosevelt voters stood alone. The position of the Thomas voters, as shown by Table 5, is more decisive. The following propositions are accepted by substantial majorities of the Socialists and by less than majorities in the other two parties: *The United States should lead the way to peace by reducing her army and navy. Railroads, power companies, and banks should be owned by the Government. The United States should join the World Court. The United States should recognize Soviet Russia.*

The following statements are rejected by the Thomas voters alone (Table 6), though it should be noted that only the upper classes reject the declaration for a large army and navy: *High taxes on the rich will retard the recovery of prosperity. The United States should maintain an army and navy at least equal to those of other great powers. The Government should keep out of business.*

In terms of doctrine the Socialist voters thus seem to occupy a more unique position than do either the Democrats or Republicans. Another way of putting the matter is by saying that the Socialists are further removed in their political beliefs from the other two parties than are those other two parties from each other.

If we go over the majorities representing the positive stands of the Thomas voters (Table 5) we observe that in three cases out of four there is evidence of decreasing majorities in the lower occupational groups. It is interesting that these three propositions represent definitely internationalistic attitudes. The proposition for which the majorities hold up fairly well in the lower occupations is the conventionally Socialistic statement in favor of government ownership. Similarly, in respect to the propositions rejected by the Thomas voters, the majorities for rejection are more definite in the presumably more intelligent groups. At an earlier point in this paper reference was made to the larger proportions of Thomas voters among the better-

TABLE 6
THOMAS VOTERS REJECT
Percentage of *No* votes

	Professional	Semi-profes- sional and managerial	Clerical and skilled trades	Farmers	Factory workers
<i>High taxes on the rich will retard recovery of prosperity.</i>					
<i>Men</i>					
Hoover	26	22	28	34	28
Roosevelt	52	44	37	45	23
Thomas	78	71	58	67	62
<i>Women</i>					
Hoover	30	29	30	32	17
Roosevelt	52	45	39	44	29
Thomas	70	71	68	37	37
<i>The United States should maintain an army and navy at least equal to those of other great powers.</i>					
<i>Men</i>					
Hoover	20	12	8	8	5
Roosevelt	29	11	6	11	3
Thomas	68	45	42	39	39
<i>Women</i>					
Hoover	15	12	8	9	6
Roosevelt	16	18	9	11	3
Thomas	56	53	47	38	8
<i>The Government should keep out of business.</i>					
<i>Men</i>					
Hoover	13	7	15	13	19
Roosevelt	28	12	18	26	20
Thomas	75	57	56	44	62
<i>Women</i>					
Hoover	21	16	19	21	21
Roosevelt	31	19	23	24	22
Thomas	61	62	52	50	33

educated classes. Here we have the additional evidence that socialism as a political theory has not permeated to the classes at whom it is more specifically directed.

There is a common assumption that most of the catch-phrases of a presidential campaign express sentiments intended to please everybody. In our list of 24 propositions there were 7 which were favored by majorities from all three parties. They were as follows: *The Federal Government should protect those states which wish to retain prohibition. The rich should bear a larger proportion of the burden*

of taxation. It is the duty of the Federal Government to place farming on an equal footing with industry. Government expenditures should be drastically reduced. The currency of the United States should be kept sound at all hazards. The farmer should adjust his production to the law of supply and demand. The Government should support only those veterans disabled during the War. Four of these propositions appear in Table 2 among those most heartily approved by the Hoover voters and the other three appear in Table 7.

TABLE 7
ALL PARTIES FAVOR
(See also Table 2)
Percentage of Yes votes

	Professional	Semi-profes- sional and managerial	Clerical and skilled trades	Farmers	Factory workers
<i>The rich should bear a larger proportion of the burden of taxation.</i>					
<i>Men</i>					
Hoover	60	50	59	65	52
Roosevelt	75	70	73	77	77
Thomas	90	83	90	89	92
<i>Women</i>					
Hoover	66	59	64	72	60
Roosevelt	79	75	78	76	79
Thomas	91	94	90	88	89
<i>It is the duty of the Federal Government to place farming on an equal footing with industry.</i>					
<i>Men</i>					
Hoover	59	55	68	78	76
Roosevelt	65	72	81	86	81
Thomas	66	66	84	83	62
<i>Women</i>					
Hoover	64	64	68	83	61
Roosevelt	70	81	75	90	71
Thomas	67	71	79	88	85
<i>Governmental expenditures should be drastically reduced.</i>					
<i>Men</i>					
Hoover	83	88	83	92	84
Roosevelt	82	94	89	94	89
Thomas	63	87	82	94	77
<i>Women</i>					
Hoover	82	89	82	88	73
Roosevelt	83	91	87	94	75
Thomas	67	81	77	100	89

All parties gave substantial majorities against the one proposition: *The Government should pay the soldiers' bonus at once and in full.* The only instances where the negative majorities failed to occur were for the Roosevelt and Thomas voters among the factory workers. (Table 8.)

These eight propositions—seven positively and one negatively—represent then the political philosophy of the voters as a whole during the few weeks preceding the election. They constitute an interesting mixture of *laissez-faire* attitudes and *non-laissez-faire* attitudes brought into prominence by the immediate economic difficulties of the nation. It should also be noted that no item of international policy is among these widely accepted propositions. If President Roosevelt makes a move toward the recognition of Soviet Russia it will be a case of real national leadership and not of that kind of leadership exemplified by his dealing with the veterans' lobby. In the instance of Russia he will begin with small support even among those who voted for him. In handling the veterans, though he did what was regarded by some as politically dangerous, he did only that for which a strong and widespread public sentiment was already in existence.

The voter reacted to each of the 24 propositions contained in the questionnaire by signifying approval, disapproval, or doubt. Thus far little has been said about the doubtful judgments, yet they should not be neglected. It is at least possible that a willingness to admit doubt regarding a complicated social question may be a necessary stage of transition from ignorant conviction to the conviction that is based upon enlightenment.

TABLE 8
ALL PARTIES REJECT
Percentage of *No* votes

	Professional	Semi-profes- sional and managerial	Clerical and skilled trades	Farmers	Factory workers
<i>The Government should pay the soldiers' bonus at once and in full.</i>					
<i>Men</i>					
Hoover	95	92	86	83	64
Roosevelt	79	77	53	61	37
Thomas	86	88	54	67	31
<i>Women</i>					
Hoover	93	90	83	81	52
Roosevelt	74	74	54	51	25
Thomas	87	91	68	76	26

The women voters may be pleased or chagrined to learn that they gave more doubtful judgments than the men on almost every issue. The clear exception was in the case of the humanitarian proposal that *The rich should bear a larger proportion of the burden of taxation.*

For 23 out of 24 of our propositions there was at least one party which gave substantial majorities for or against. The one proposition in regard to which all parties were apparently baffled was: *In times of economic distress there should be liberal borrowing by the Federal Government.* (Table 9.)

If one were inclined to be discouraged with the democratic process he might seize upon this case to prove the inability of the public to make up its mind regarding an essential problem of our present critical times. Personally, I am inclined toward another interpretation. Dealing with this proposition analogically, and on the basis of rugged individualism, the answer would be that: "The Federal Government should never borrow if it can do otherwise, and certainly it should not borrow in hard times." May not the widespread doubt recorded on this issue mean that the public is moving toward a more adequate distinction between the rules of private self-sufficiency and those of wise public policy?

Here in the briefest compass are the findings of the present study:

The most distinct system of political ideas was possessed by the upper class groups voting for Thomas.

Those who voted for Hoover or for Roosevelt were distinguished mainly by the degree to which they approved or disapproved of certain political propositions, rather than by the adoption of any unique political ideas.

The political attitudes of those who voted for Roosevelt swung sometimes toward the ideas of Thomas and sometimes toward the ideas of Hoover, and sometimes they fell between. There is only one clear case in which the Roosevelt supporters took a more decided stand than did the supporters of one of the other candidates. This was in the case of the plank calling, in unqualified terms, for the repeal of the 18th Amendment.

The political attitudes acceptable to all three parties show an allegiance to such good old *laissez faire* propositions as *The currency should be kept sound at all hazards*, and *The farmer should adjust his production to the law of supply and demand.* But it is also clear that by October, 1932, there had crept into the generalized American

TABLE 9
ALL PARTIES DOUBTFUL
All Votes

	Professional		Semi-professional and managerial		Clerical and skilled trades		Farmers		Factory workers			
	Yes	Doubt.	No	Yes	Doubt.	No	Yes	Doubt.	No	Yes	Doubt.	No
<i>In times of economic distress there should be liberal borrowing by the Federal Government.</i>												
	<i>Men</i>											
Hoover	27	37	36	30	38	32	32	37	31	32	42	26
Roosevelt	33	38	29	38	35	27	44	32	24	40	38	22
Thomas	44	34	22	43	36	21	34	44	22	22	39	39
	<i>Women</i>											
Hoover	19	49	32	22	49	29	22	48	30	19	59	22
Roosevelt	22	51	27	31	44	25	28	46	26	25	50	25
Thomas	28	51	21	34	52	14	21	55	24	63	25	12
										29	46	25
										39	48	13
										41	48	11

mind the definitely Socialistic doctrines that *It is the duty of the Federal Government to place farming on an equal footing with industry*, and that *The rich should bear a larger proportion of the burden of taxation*.

Yale University
New Haven, Connecticut

LES TENDANCES DE L'ESPRIT DU VOTANT

(Résumé)

Avec la coopération des membres de la Ligue Nationale des Femmes qui Votent on a obtenu au mois d'octobre, 1932, des réactions de 8419 hommes et femmes aux principaux candidats à la Présidence et aux principales questions de la lutte. Les "votants" ont représenté cinq groupes d'occupations et 37 états des Etats-Unis.

Le principal but de l'étude a été de comparer les attitudes politiques des partisans de Hoover, de Roosevelt, et de Thomas. Ceux de Roosevelt n'ont jamais composé un seul groupe au point de vue d'accepter ou de rejeter une question politique. Ils ont adopté la position de Hoover, celle de Thomas, ou sont restés entre les deux, selon la question. Ils offrent probablement un bon tableau statistique d'un mouvement *libéral*. Les partisans de Hoover ont eu des opinions plus prononcées et plus uniques que ceux de Roosevelt, et ceux de Thomas ont montré les attitudes les plus prononcées et les plus uniques. L'étude montre aussi de certaines différences associées au sexe et au niveau de l'occupation.

ROBINSON

NEIGUNGEN DER GESINNUNG DES WÄHLERS

(Referat)

Unter Mitwirkung der Mitglieder des Nationalvereins der weiblichen Wähler [National League of Women Voters] wurden im Oktober 1932 die Reaktionen von 8419 Männern und Frauen auf die wichtigsten Kandidaten für das Präsidententum und auf die wichtigsten Streitfragen [issues of the campaign] erhalten. Die "Wähler" stammten aus fünf verschiedenen Berufsgruppen und aus 37 Staaten der Vereinigten Staaten.

Das Hauptziel der Untersuchung war, die politischen Einstellungen der Parteigänger für Hoover, Roosevelt, und Thomas zu vergleichen. Die Rooseveltanhänger standen in ihrer Annahme oder Zurückweisung einer politischen Behauptung nie allein. Je nach der Frage gingen sie zur Hoover'schen oder zur Thomas'schen Einstellung über oder nahmen eine mittlere Stellung ein. Sie bieten wahrscheinlich ein gutes statistisches Bild einer liberalen Bewegung dar. Die Hooververtreter waren in ihren Einstellungen etwas ausgeprägter und individueller, als die Rooseveltvertreter, und die Thomasvertreter nahmen die ausgeprägtesten und individuellsten Einstellungen ein. Durch die Untersuchung werden auch gewisse, mit Geschlecht und Berufsstand in Beziehung stehende Unterschiede hervorgehoben.

ROBINSON

STUDENTS' ADJUSTMENTS IN ANGER* †

From the Psychological Service Center of Saint Louis, Missouri

H. MELTZER

Anger has been called the worst propensity of human nature,¹ the father and mother of craft, cruelty, and intrigue and the chief enemy of public happiness and private peace! It has been described as a pathological unmasking of primitive behavior (8, p. 86), as a psychological manifestation of an age gone by (30, p. 23), and as a compensatory reaction motivated by feelings of inferiority (4). Herick (12, p. 215) considers the demand for the control of anger and its redirection into more refined behavior the major problem of our personal adjustments. And Allport (1, p. 341) lists anger as one of the two main prepotent drives in the major conflict of social adjustment and gives it as his opinion that our social order could not exist without a curb upon our anger struggles. The attitude expressed by the individuals mentioned in this paragraph is summarized in the Chinese proverb—"Chain anger, lest it chain thee."

On the other hand, Plato described anger as the basis of the state, Ribot (21) called it the establisher of justice in the world, and Bergson (2) thinks society rests on anger at vice and crime with the implication that given enough anger society can sweep away all evils. In the mind of Stanley (25) the day when anger was first achieved and some individuals really got mad was a most momentous day in the progress of mind. Publius Syrus thought, "The anger of lovers renews the strength of love." G. S. Hall, who back in 1899 made a questionnaire study of anger (9) and in 1915 suggested the application of Freudian concepts in interpreting anger (11), gave it as his opinion that "anger should be a great and diffused power in human life, giving it zest and force" (10, p. 35), and advocated "careful psychiatisation but never extermination." And even a modern psychiatrist (31) describes anger as being "of the greatest

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¹Describes attitudes of Seneca and Stoic philosophers.

moral value when the violation of a sacred principle develops into righteous indignation." All of this paragraph can be said to show that the Platonic conception of anger, unlike Platonic love, is no counterfeit of reality.

That the management of anger is a very important problem in personality adjustments is clear. Equally clear, however, is the fact that, by and large, psychologists have neglected to investigate this problem. For example, in the most comprehensive history of experimental psychology (2) anger is not mentioned in the index, and in the book (19) which gives the best genetic account of modern movements in psychology mention is made of but one study—Moore's "Laboratory Tests of Anger, Fear and Sex Interest" (17). Hence, in practically all books in general psychology and even in a book called *The Emotions of Men* (15) the treatment is limited to a description of the neuro-physiological and glandular correlates as reported by Professor Cannon in his *Bodily Changes in Pain, Hunger, Fear and Rage* (4). Admittedly, personality is a social fact, yet the psycho-social level of description of this aspect of personality has been neglected. One reason apparently was in the fears of psychologists, perhaps somewhat warranted, to taint themselves with an interest in a human problem which could not be easily attacked in the laboratory. More recently, as indicated by Gardner Murphy in his recent book (20), more and more psychologists, influenced by psychiatrists on the one hand, and sociologists (3), on the other, are applying quantitative if not experimental methods in investigating more humanized problems. The diary method of studying changes in personality traits has been used by the psychologists, William Stern and Charlotte Bühler, as well as by the sociologist, Clifford Shaw (23). However, by the use of a diary one can gain insight into the nature of one individual but can hardly tell to what extent the behavior manifested is representative of individuals of a given age, economic status, or any other grouping. More satisfactory for such purposes is the controlled diary. Besides, as Murphy points out, this method comes very much nearer to scientific requirements.

In three studies of anger—all made within the last five or six years—modifications of this controlled diary method have been used. Goodenough (7), in her investigation of children, used the observational method. Stratton (28), in investigating college students, had the subjects keep records of their anger for three days by checking on a prepared list of 19 situations arousing anger and 6 possible

effects. This procedure yielded data which made possible the calculation of an anger index and its correlation with other factors. But, in the light of the findings reported in this study concerning the influence of home-life and geographic setting on the hourly and daily variations of anger responses in college students, the adequacy of the week-end sampling used by Stratton may be justifiably questioned. Less constrained a method and one which yields information in many ways as close to the life of the individual as that obtained by the more spontaneous diary which cannot be treated statistically is that used by G. S. Gates (6).

THE PRESENT STUDY

The thinking which directed the planning of the present study can briefly be stated as follows: Social situations as well as mental mechanisms influence behavior. More realistic insights into, and less intuitions about, the nature of students' adjustments in anger can, therefore, be gained by investigating facts of anger obtained by a method that yields materials, which, though realistic, are also susceptible to quantitative treatment rather than stereotyped interpretations.

Specifically, the present study represents an attempt to investigate the influences of three psycho-social factors—sex, organization of home-life, and geographic setting—on the anger responses of college students. By organization of home-life is meant living or not living in a fraternity house if a man, and in a sorority, if a woman. The influence of geographic setting was studied by comparing the anger diaries of Oregon girls living in a small college community with the girls living in a college located in New York City (Barnard).

The method used for obtaining the facts of anger was the "controlled diary," called observational by G. S. Gates. All the items studied by her—frequency of occurrence, time, duration, intensity, condition before anger, responses during anger, impulses felt, and after-effects—were investigated. But in working up the materials of this study the interests of the clinical psychologist in personality adjustments were dominant. Hence, the material was analyzed in terms of state of equilibrium or disequilibrium before anger, in dissociative or integrative trend following the anger experience, and in the evaluation of the adaptiveness of responses made during anger, ranging from practically complete non-adaptiveness to a full facing

of the total situation as well as some of the more itemized factors reported in the earlier study. In agreement with this emphasis is the analysis of motivation in terms of thwartings of self-assertion, which was used by Gates. The special features of the present study are, then, two in number: (1) the selection of well-defined psycho-social factors to investigate, and (2) the emphasis on the relationship of the findings to personality adjustments.

The subjects were 99 students in the first course in psychology at Oregon State College in the fall of 1926. Six of the records handed in were not usable. Of the 93 whose records were used, 58 were girls and 35 were boys. Of the girls 30 were sorority women and 28 were not. Of the boys 17 were fraternity men and 18, non-fraternity. The college is located in a fairly conservative town of about six thousand. At that time Sunday movies were non-existent there. Portland, the Oregon metropolis, is 89 miles distant. Eugene, the seat of the University of Oregon, is about 45 miles distant. Salem is less than 50 miles away, Newport on the Pacific about 40 miles, and Albany, a somewhat larger and more open town, was adjacent. The enrollment of about 3700 students was made up of roughly twice as many boys as girls. Most of the students came from rural communities or small towns. The women boast of one of the best-equipped gymnasiums in the country and of superior possibilities for training in physical education. Women have many other opportunities to make points for participation in extra-curricular activities. But in spite of all this, the dominant customs and traditions are largely man-made. Men do the sensational "fighting for the honor of the college." In general, women have their lives more regulated by authorities. On the other hand, the subjects used by Gates are from Barnard, which is the women's college of Columbia University located in New York City. In interpreting the following results this difference in social setting and selection of subjects should be kept in mind. The findings reported are, of course, applicable only to the individuals studied when living under the conditions described.

FINDINGS AND THEIR INTERPRETATION

1. *Sex, Home, and Community Differences in Anger Responses of College Students.* The reports of the 93 Oregon students yielded 393 anger responses in all. One hundred and eighty-nine anger responses are reported by the men, 94 by fraternity men and 95 by the independents. Two hundred and four responses were reported

TABLE 1

GROUP DIFFERENCES IN FREQUENCY OF ANGER RESPONSES IN COLLEGE STUDENTS

	Mean	S.D.	Diff.	S.D. _{diff.}	D/S.D. _{diff.}	Chances in 100 of true diff.
Sorority	4.30	2.39	.59*	3.09	.19	57.00
Non-sorority	3.71	1.97				
Oregon women	4.02	2.41	.68	3.25	.209	58.00
N. Y. women	3.34	2.18				
Fraternity	6.03	3.83	.25	4.43	.0564	52.00
Non-fraternity	5.78	2.23				
Men	5.90	.81	1.88†	2.54	.74	77.00
Oregon men and women	4.73	2.76				

*Diff., S.D._{diff.}, etc., always placed in column parallel with group having larger mean.

†This difference is between men and women in Oregon subjects.

by the women, 114 by the sorority group and 90 by the non-sorority. Gates's 51 New York students reported 145 anger responses. The number of anger responses in one week range from 0 to 10 for the New York group, from 1 to 15 for Oregon men, and from 1 to 13 for Oregon women. The frequency of occurrence is reported more statistically in Table 1. To make comparisons with the New York group possible the statistical measures reported for it in Table 1 were calculated by the writer from the raw frequency distribution reported by Gates.

The foregoing results indicate that the largest differences in frequency of anger during a week in all the groups studied is between men and women. Men average 39% more anger responses per week.² Fraternity men average only 4% more than non-fraternity. Sorority women average 14% more than non-sorority. Oregon women average 18% more than the Barnard women, but the Oregon non-sorority women average only 10% more. The reliability of these differences is indicated in Table 1.

2. *Group Differences in Time of Occurrence of Anger Responses.* Differences in time of occurrences are reported in days of week in Table 2 and in times of day in Table 3. In these and all the fol-

²This is quite contrary to G. S. Hall's impression expressed in his questionnaire study, to the effect that women have more provocations but usually practice control better (9, p. 531).

TABLE 2
GROUP DIFFERENCES IN PERCENTAGE OF ANGER RESPONSES OCCURRING EACH DAY

Day of week	M	T	W	T	F	S	Sun.
Sorority	18.64	19.49	15.25	13.55	13.55	9.33	10.16
Non-sorority	14.00	15.00	16.00	16.00	14.00	17.00	8.00
Oregon women	16.51	17.43	15.59	14.67	13.76	12.84	9.17
N. Y. women	10.34	10.34	12.41	8.96	24.14	19.31	14.48
Fraternity	17.20	19.35	11.82	16.12	11.82	11.82	11.82
Non-fraternity	13.48	14.60	15.73	19.10	12.35	16.85	7.86
Men	15.38	17.03	13.76	17.58	12.08	14.28	9.88
Oregon men and women	16.00	17.25	14.75	16.00	13.00	13.50	9.50

lowing tables wherein percentages for the New York group are reported, the percentages were calculated by the writer from the data reported by Gates.

The percentages of anger responses occurring each day as reported in Table 2 reveal some interesting differences. For example, the New York group reports the largest number of anger responses on Friday, Saturday, and Sunday, whereas the Oregonians, considered as a whole, report the least number of anger responses on these days. The differences in the daily variations between the fraternity and the non-fraternity groups are exactly the same as the differences in the variations between the sorority and non-sorority groups. On Monday and Tuesday the organization³ groups average much larger percentages of anger than the independents. On Wednesday, Thursday and Friday the independents average somewhat more; on Saturday, very much more. On Sunday, which is the lowest day for all Oregon groups, the organization groups average somewhat more. Of all groups studied, the least significant differences are between the sexes. The variations of the non-sorority group in Oregon are more like the New York girls than any other group. Tuesday, rather than the traditionally assumed Monday, is "blue" day for the organization groups, but Monday is a close second. For the independents Thursday and Saturday are the blue days. All of these facts and others reported in Table 2 suggest that the day of the week on which a college student becomes angry is closely related with the organi-

³For the sake of brevity the fraternity and sorority groups will frequently be referred to as the organization group and the non-fraternity and non-sorority groups as independents.

TABLE 3

DIFFERENCES IN PERCENTAGE OF ANGER RESPONSES OCCURRING AT VARIOUS TIMES OF DAY

Time of day	Sor.	Non-sor.	Oregon women	N. Y. women	Frat.	Non-frat.	Oregon men and women	Men	women
Less than one hour before breakfast	3.38	4.82	3.98	10.34	9.78	9.87	9.83	6.68	
At breakfast	.85		.50	.69				.27	
Less than one hour after breakfast	6.78	8.43	7.46	11.72	5.43	3.70	4.62	6.15	
Middle forenoon (about three hours)	12.71	15.66	13.93	6.21	11.95	13.58	12.72	13.37	
Less than one hour before lunch	6.78	10.84	8.45	12.41	4.37	8.64	6.36	7.49	
At lunch	2.54	1.20	1.99		2.17	1.23	1.73	1.87	
Less than one hour after lunch	6.78	6.02	6.47	4.82	7.61	6.17	6.94	6.68	
Middle afternoon (about three hours)	20.34	10.84	16.42	11.03	27.16	25.92	26.59	21.12	
Less than one hour before dinner	5.93	12.04	8.46	15.86	6.52	8.64	7.51	8.02	
At dinner	3.38	3.61	3.48	3.44		4.94	2.31	2.94	
Less than one hour after dinner	5.93	10.84	7.96	5.52	6.52	1.23	4.05	6.15	
In evening (about three hours)	22.03	15.66	19.40	15.17	18.48	14.81	16.76	18.18	
After retiring	2.54		1.49	2.75		1.23	.58	1.06	

zation of home-life and geographic setting of the college community. Independents appear to control their anger more successfully on school days whereas the organization groups seem to be confronted by less anger-provoking stimuli on holidays. In this respect the Barnard girls are much more like the independents in Oregon. The larger number of anger responses the New York subjects report on Saturday and Sunday may be explained as follows: On non-school days the Barnard girls have all of New York City life to which to react. This means not only a wider range of activities to select from but also greater possibilities for disappointments and irritations than is possible in a small college town.

The data reported in Table 3 indicate that the differences in the percentage of anger responses occurring at various times of day are conditioned mostly by the organization of home-life in relation to geographic setting of the community, though there are also some sex differences. The high points for the New York group were before lunch and dinner. The Oregonians, on the other hand, experience more anger in the in-between periods—in the middle afternoon, the middle forenoon, and the three-hour evening periods—more than one hour after dinner. "Getting to college" after breakfast appears to provoke more anger from women than men in Oregon. In their greater frequency of anger responses before rather than after lunch or dinner the non-sorority girls in Oregon again are more like the Barnard women. Sorority girls, on the other hand, experience exactly as many anger experiences after the two meals as before. Fraternity men experience more anger after lunch than before, whereas non-fraternity men experience more before. Fraternity men report as many anger responses after dinner as before; non-fraternity men report more before.

3. *Differences in Condition before Anger Situation Arose.* Stratton (26) found a positive relationship between emotions and incidence of disease obtained from medical histories. The relationship between the condition of the subjects before anger occurred and frequency of anger experienced is reported in Table 4. The many descriptions given by the subjects in describing their condition were grouped under four large captions. Under "Disequilibrium" are included such descriptions as the following: tired, sleepy, tired and hungry, hungry, headache, cold, irritable, worried, eyes tired, disappointed, discouraged, disgusted, nervous, in great hurry, restless, despondent, blue, exhausted, lazy, bored. Under "Equilibrium"

TABLE 4
GROUP DIFFERENCES IN CONDITION BEFORE ANGER SITUATION AROSE
(in Percentages)

	Disequilibrium	Equilibrium	Asleep	Not given
Sorority	47.01	4.27	.85	47.86
Non-sorority	31.68	4.95	.99	62.38
Oregon women	39.91	4.58	.92	54.59
N. Y. women	44.83	13.10	2.06	40.00
Fraternity	47.87	12.77	1.06	38.30
Non-fraternity	31.11	14.44	4.44	50.00
Men	39.67	13.58	2.71	44.02
Oregon men and women	39.80	8.71	1.74	49.75

were included high spirits, gay, happy, good, relaxed, contented, congenial, normal, O. K. The other two captions are self-explanatory.

Roughly, 40% of the time the college students are in a state of disequilibrium before the anger situation arises. Tired, of all these descriptions, is reported most often. Sleepy, which is reported next most often, is mentioned only one-fourth as frequently. The organization groups are more often in an unfavorable condition or in a state of disequilibrium before experiencing anger.

4. *Differences in Duration of Anger.* The duration of the anger experiences ranged all the way from less than five minutes to two full days. The median, Q_1 , and Q_3 for the group as a whole reported in minutes are respectively 15.42, 6.60, and 34.45. The one group which deviates significantly from these figures is the fraternity. The median and Q 's for this group are 20.9, 10.9, and 60.69, and the Q , 25.29. The Q for every other group deviates very little from the Q for the group as a whole which is 13.93. The median and Q_1 for the non-fraternity group are 7.85 and 3.19, respectively. All the other measures do not deviate sufficiently to warrant reporting. The median for the New York group is given as between 10 and 20. The other measures could not be calculated because the raw distribution is not reported. In her article the comparable data are reported by Gates in Table 6 under the following divisions: 5 minutes or less; 10 to 20 minutes; $\frac{1}{2}$ to $\frac{3}{4}$ hour; 1 to $1\frac{1}{2}$ hours; 2, 3, 4 hours; $\frac{1}{2}$ day; 1 day. Though we have calculated the percentages of anger responses falling in each of these divisions for all of the groups and arranged the data in tabular form, we shall for the sake of brevity comment only on the more significant differ-

ences. In all instances the greatest number of anger responses are reported for the shortest time intervals. The sequential decreases are not unlike the course manifested by Gates's group. The only really large differences are in the two shortest time intervals. The duration of 52.94% of anger responses of the non-fraternity men is less than 5 minutes and the duration of 13.23% is 10 to 20 minutes. The corresponding figures for the fraternity group are 23.07 and 32.96, respectively.

The one anger experience lasting two days was reported by a fraternity man whose IQ, based on Otis Self-Administering Test, is 116 and who was doing barely passing work in psychology. The event took place on Saturday, at 11:15 P.M. He described himself as being tired and sentimental before the anger situation arose. The given cause is: asked to see his steady girl and was refused for vindictive reasons. In response he treated her with indifference, though he felt an impulse to tell her how selfish and inconsistent she was. However, he later decided in favor of "conquering her independent disposition." This individual reported only two other anger experiences for the week. One was on Friday at 7:00 P.M. in response to "outburst of laughter at an innocent remark made in house meeting" which lasted only one minute; the other was on Wednesday, 6:45 A.M., when he "wanted to get up and study and the alarm failed to go off." This lasted only three minutes but he was irritable most of the day.

An experience which lasted 11 hours was reported by a non-sorority woman. This occurred on Saturday, 10:00 P.M., when she was tired. The given cause was, "girl walked off with a box of candy from my room—evidently as a joke." This girl reported only one other anger reaction during the week. The given cause was, "the hostess deliberately served me a poor cut of meat." This lasted 20 minutes.

A sampling of the given causes which evoked anger responses which lasted for 10 hours are: "failure of social plans and realization of own fault"; "heard that snapshots of me were being circulated by boy friend"; "washed my hair for the first time after a permanent wave and it wouldn't go in the right way"; "a soph turned up my alarm clock and made me late with my work."

Samplings of given causes for anger which lasted less than five minutes are: "stumbled and fell in mud"; "poor assignment in education course"; "four rooks came in my room to hold a bullfest

while I was cramming for an examination"; "dropped a blot of ink on an important paper"; "realized I made a boner in quiz, the answer to which was obvious"; "brother teased me"; "classmate skipped class and I had to go to school alone."

5. *Differences in Motivation.* G. S. Hall (11) called anger the acme of self-assertion and described its cause as being "always some form of thwarting wish or will or reduction of self-feeling." In the same article he argued for the use of the Freudian method in interpreting anger. Considering the close relationship between the "mastery impulse" or self-assertion with anger, it is surprising that Jung, with his emphasis on the "ego," and Adler, with his emphasis on the "will to power," have not written more about its retrogressive or compensatory manifestations. A survey of the anger responses reported seemed to indicate that in all instances anger was a response to the thwarting of some course of action. It seemed logical to attempt to classify the responses under the classifications used by Gates. After many trials it was finally decided to break up "Thwarting of other activities" into two sub-divisions—"Organic" and "Situational." Under "Organic" were classified all responses which represented the inhibition or interference with the efforts to satisfy the desire to sleep, the hunger urge, or some organic need. Under "Situational" were classified experiences wherein the anger was dominantly not a response to any one person or thing but to a multiplicity of persons and things in a complex situation. The results of the classification are reported in Table 5.

TABLE 5
DIFFERENCES IN SOURCES OF THWARTINGS AROUSING ANGER
(in Percentages)

	Thwarting of self-assertion			Thwarting of other activities	
	Defensive reaction to persons	Aggressive reaction to persons	Defensive reaction to things	Organic	Situational
Sorority	43.00	18.00	27.00	7.00	5.00
Non-sorority	47.00	21.00	24.00	3.00	5.00
Women	45.00	19.00	26.00	5.00	5.00
Fraternity	31.00	9.00	45.00	6.00	10.00
Non-fraternity	27.00	5.00	49.00	6.00	14.00
Men	29.00	7.00	47.00	6.00	12.00
Men and women	37.72	13.41	35.19	5.56	8.11

The thwarting of self-assertion as such accounts for 86.32% of the anger experiences. And in many of the responses classified under the other categories this impulse has also played some rôle. Of all experiences reported, 51.13% are reactions to persons. This is in fair agreement with the findings of Cason (5) in his comprehensive study of annoyances, wherein he reports that more than half of twenty-one thousand annoyances reported by 659 subjects were reactions to human behavior, more than one-fourth were reactions to physical characteristics or clothing, and less than one-fourth were reactions of an impersonal sort.

By far the most striking difference reported in Table 5 is that between the two sexes in the thwartings of self-assertion. All other differences fade into insignificance by comparison. Forty-five per cent of the women's responses are defensive reactions to persons and 19% are aggressive reactions to persons—a total of 64% reactions to persons. Twenty-six per cent of their responses are defensive reactions to things. On the other hand, only 29% of the men's responses are defensive reactions to persons and 7% are aggressive reactions to persons—a total of 36% reactions to persons. And 47% of their responses are defensive reactions to things. In the other relatively impersonal divisions—organic reactions and situational sources—men also average higher percentages.

Illustrative of masculine sources of thwartings are: "found design sheet smeared with dirt"; "oil leaked out of motor into clothes"; "kid in Ford cut in on me"; "hit on toe by board I was nailing"; "knee knocked from socket by opponent in football scrimmage"; "broke a shoe-string in a hurry to get breakfast"; "went to meeting scheduled to last one-half hour which lasted till 10:30. Woman speaker said nothing of importance but I couldn't walk out as there were only 20 of us and she was famous."

Samplings of feminine sources of irritation are: "prof.'s daughter acted like she owned the place"; "suitor called at house but didn't ask for me"; "roommate told me to go to class"; "instructor didn't have class criticize my work"; "girl made slighting remarks about a friend of mine"; "bawled out for talking in library"; "bored with partner's conversation"; "making toast and a person interfered, then asked why I was nervous"; "boy supposed to come from Eugene and didn't"; "a friend was sarcastic to me"; "remarks by landlady about my conduct."

The sex differences noted here are in agreement with the differ-

ences emphasized by Thorndike (29, pp. 346-351) many years ago. It is also interesting to note that though studies of sex differences in conversation (13, 18, 24) disagree on some points, they all consistently report a greater tendency for women to talk about persons. It is logical enough to find women experiencing more sources of irritation in reaction to persons when they also talk more of persons and also gain more knowledge about human nature in a given period of time (16).

6. *Responses Made during Anger.* Excited talking or angry exclamation is the most frequently reported response made during anger by all groups. Oregonians report this response much more frequently than the New York girls. The percentage frequency for Oregonians is 29.53; for Barnard, only 10.66. For men the percentage is 36.41; for women, 23.42. Fraternity men respond in this fashion almost twice as frequently as non-fraternity men. The respective percentages are 49.25 and 25.00. Another very frequently mentioned response is angry, sarcastic, or sulky retort. The frequency of this response in percentage for Oregonians is 13.21; for the Barnard girls, 8.66. These two responses add up to more than 40%. A pleasant reply as a response is reported three times by Gates for her group and 18 times by Oregonians. Women in Oregon average a somewhat larger percentage of such responses—5.63 as against 3.55 for the men. More than 10% (10.89) of Oregonians continue with activities confronting them in spite of anger; no such response is reported by Gates for the Barnard girls. Men respond in this manner twice as often as women—the percentages are 14.40 and 7.99. It is the non-fraternity group, however, that is responsible for this. Their average percentage for this response is 22.90 as against only 4.93 for the fraternity men. In 16.83% of the instances Oregonians report making no response during anger; this response is again not reported by Barnard girls. More restless behavior, such as pacing, tossing in bed, shifting in chair, is reported by the New York group—20 mentions for 51 girls as against 5 for 93 Oregonians. Refusal to speak is reported four times by the sorority group and only once by the non-sorority; three times by the fraternity men and only once by the non-fraternity men. No men report the refusal of food whereas the sorority group and the New York group each report two such responses. Violence to offender is reported three times by the New York women, four times by fraternity men, and two times by the sorority as well as the non-sorority

group. Tears in eyes, stamping of foot, and the clenching of teeth and hands are rarely reported by men; reported one to three times by Oregon women and eight to twelve times by the New York women.

Following Gates, we classified all the specific responses under three large captions: (1) "Gross bodily responses" directed at offending object, (2) "Expressive movements," (3) "Activities of sympathetic system and adrenal glands" (mainly). Under the first caption were included such responses as excited talking or angry exclamation; angry, sarcastic, sulky retort; restless behavior; refusal to speak or look at offender; violence to offender; peeved, irritated; stubborn or sulky; continue present activity; overcoming inhibition by relaxation; going home, etc. Under the second caption were included such responses as unpleasant facial expression (frown); clenching teeth and hands; body tense; stamping foot; tears in eyes, crying. Under the third caption were included such responses as gasp, heavy or rapid breathing; hot feeling; flushing; trembling; weak feeling, etc. "No response" was listed separately as a fourth division. The most gross bodily response was reported by the fraternity group—83.96% as compared with 76.09% for the non-fraternity. Men name almost 5% more such responses than women; sorority women report almost 4% more than the non-sorority. All Oregon groups report very many more such responses than the New York group (the percentage for New York women is only 42%). By comparison with the New York group Oregonians manifest very few expressive movements during anger—less than 3% as against 28 for the New York women. Oregon men manifest such behavior one-fourth as frequently as the women—the percentages are 1.15 and 4.22. Non-sorority women manifest such behavior almost three times as frequently as sorority women. The story is similar with activities of the sympathetic system. The more significant percentages are 30 for the New York group; 5.42 for the non-sorority group and only .82 for the sorority; 7.61 for the non-fraternity group and none for the fraternity group.

The differences in expressive movements, as well as activities of the sympathetic system, between all Oregon groups and the New York group are large; but again the non-sorority group resembles the New York group most closely. The differences in "no responses" have been previously reported.

7. *Differences in Impulses Felt during Anger.* Forty different

descriptions of impulses felt during their experiencing of anger were reported by our subjects. Space limitations make the full reporting of all of these prohibitory. Only the most frequently mentioned and some of the more interesting ones are reported in Table 6.

TABLE 6
DIFFERENCES IN IMPULSES FELT DURING EXPERIENCE OF ANGER
(in Percentages)

Impulse	Sor.	Oregon N. Y.				Non-frat.	Oregon men and women	
		Non-sor.	wo-men	wo-men	Frat.		Men	women
To make verbal retort (tell her what I thought, etc.)	26.47	33.33	29.50	31.92	25.92	21.73	24.00	27.02
To do physical injury to offender (slap, kill, choke, push, etc.)	12.74	13.58	13.11	24.09	23.45	17.39	20.66	16.51
To injure inanimate objects (tear up, bang, kick, etc.)	18.62	11.11	15.30	12.04	11.11	15.94	13.33	14.41
To cry, scream, swear, jump	16.78	16.04	16.40	6.02	3.70	1.44	2.66	8.40
To give up efforts	2.94	3.70	3.27	4.82	7.40	14.49	10.66	6.60
To run away, leave room	6.86	6.17	6.55	7.22	4.93	4.34	4.66	5.70
To "do what I wanted to"	.98	1.23	1.09	5.42	0.00	0.00	0.00	.60
To laugh	0.00	1.23	.54	.60	0.00	0.00	0.00	.30
To blame someone else	3.92	0.00	2.18	1.81	1.23	0.00	.66	1.50
Percentage of total impulses reported by each Oregon group	30.64	24.32	54.95		24.32	20.72	45.04	

The most frequently felt impulse for all groups is to make a verbal retort. The women report this impulse 5% more frequently than men. The frequency for the Oregon non-sorority group once again is closest to the New York group. To do physical injury to the offender, which for most groups is the second most frequently reported impulse, is experienced more than 7% more frequently by men than by Oregon women, but the Barnard women average a somewhat higher percentage than even the highest male group. "To cry, scream, swear, jump," seems to be a dominantly feminine impulse. The variations for the other responses need no further comment. Other impulses reported included the refusal to eat, reported once in the New York experiences and once in the sorority experiences; to stick out tongue in one sorority experience; to retaliate in kind in three of New York experiences, one non-fraternity, four fraternity, three sorority, and three non-sorority experiences; to fight in three non-fraternity, three fraternity, and one non-sorority experiences. Other impulses reported are: to sleep more, to take it back, to stop milk delivery, to drop matter, to phone and apologize, to go to Electric (an eating place), to have rook tubbed, to razz instructor, to cut wires, to discard dress, to stay home, to sleep on davenport, and, finally, to invent bigger and better cuss words. The last was reported in one fraternity and one non-fraternity experience.

The introverted nature of the struggle response is clearly indicated by many of the reported impulses, particularly when these are perceived in comparison with the actual responses made during anger previously reported and the after-effects which are reported in the next division. Outlets for anger reactions must often be sought in indirect ways, some apparently disguised. In everyday life civilized man influenced by his linguistic heritage as well as by militaristic traditions fights with artificial instruments of violence and very often with his tongue. More and better cuss words is not as illogical a wish as it seems at first glance. Release through laughter is reported in only one non-sorority experience and one New York experience. The projection of blame to someone else is recorded in one fraternity and four sorority experiences and in none of the experiences of the independents. It is mentioned three times in the New York list of impulses.

8. *Differences in After-Effects.* Thirty-six different after-effects were reported by our subjects. "No reaction" is reported 21.77%; women, 23.91%, and men, 19.14%. A feeling of irritability is the

most frequent after-effect when the groups are considered in terms of men and women, but not when not considered in terms of sorority-non-sorority or fraternity-non-fraternity differences. Thus considered, disgust with self is mentioned more frequently by the non-sorority group and the fraternity group. The percentages for a feeling of irritability are: sorority, 19.04; non-sorority, 5.76; Oregon women, 13.04; New York, 17.93; non-fraternity, 18.27; fraternity, 10.52; men, 14.36. The percentages for disgusted with self are: sorority, 8.73; non-sorority, 8.65; New York, 16.55; non-fraternity, 7.52; fraternity, 17.89. A feeling of satisfaction, triumph, and energy was reported much more frequently by independents of both sexes—3.96% as against .96% for men and 7.52% as against 2.10% for women. The ability to turn one's anger into jest or a saving sense of humor was not at all reported by the New York group but was reported in four experiences of the men—one non-fraternity and three fraternity—and in seven experiences of Oregon women—five non-sorority and two sorority. In only one (non-fraternity) experience was the anger forgotten in the recording of it. In six of the women's experiences—three sorority and three non-sorority—is "sorry for self" reported as an after-effect. No such effect is mentioned by the men.

The after-effects are presented in more general terms in Table 7. Under "Dissociative trend" were included such specific after-effects as irritable, sorry for self, disgusted, discouraged, ashamed, trembling, forgetting to eat, distracted, sad, hurt, nervous, increased dislike for person causing anger. An after-effect was classified as symptomatic of an "Integrative trend" if balance or expansion of the ego is indicated. Illustrative of such after-effects are satisfaction, triumph,

TABLE 7
DIFFERENCES IN AFTER-EFFECTS
(in Percentages)

After-effects classified	Sor.	Oregon		N. Y.		Non- frat.	Men	Oregon men and women
		Non- sor.	wo- men	wo- men	Frat.			
Dissociative trend	66.59	58.57	62.91	56.54	62.14	61.28	61.76	63.00
Integrative trend	11.87	14.40	13.00	15.77	15.76	20.40	18.14	15.24
No reaction	21.42	26.92	23.91	27.59	21.05	17.20	19.14	21.76

feeling of energy; calm; O. K.; relief; efforts continued. The third caption used in self-explanatory.

The results reported in the foregoing table suggest that almost two-thirds of the anger experiences are followed by unfavorable after-effects symptomatic of a dissociative trend. In only 15% of the instances does the after-effect reported indicate a psycho-cathartic effect or expanded ego feeling which we have here labeled as being symptomatic of an integrative trend.

9. *Differences in the Socialization of Anger Responses.* To get a more unified idea of the nature of the anger experiences than is given in the analyzed elements previously reported, the control of impulses, the socialization of emotions, the types of struggle inhibition, and the adaptiveness of the responses made were investigated.

The control of impulses was investigated by comparing the response made with the impulse felt in each instance and classifying the impulse-response configuration under one of four divisions, namely: "Inhibited," "Partially inhibited," "Yielded to," and "Impulse better than response." So classified, 31.46% of the experiences were found to be inhibited; 50.57% were partially inhibited; 16.67% were yielded to; and in only 1.33% was the impulse better than response. All of the latter were experiences of men. Sex differences in the other divisions were relatively insignificant. Independents of both sexes averaged more inhibited and less partially inhibited.

The socialization of emotions was evaluated by classifying the after-effects on a four-fold scale labeled (1) individual, (2) individual-social, (3) social-individual, and (4) social. The percentages for the group as a whole are 37.30, 16.40, 10.05, and 36.24, respectively. Male responses are somewhat more individualistic. But the largest difference is between the fraternity and non-fraternity groups on the two extreme divisions of the scale. The fraternity group averages 20% individual and 52% social, whereas the non-fraternity group averages 42% individual and 28% social.

Three types of anger responses were reported by Richardson.⁴ The first type or attributive is distinctly hostile and retaliative either in imagination or in fact. The second type is one of self-control, non-resistance, or deliberate friendliness. The third type is an attitude

⁴The discussion follows Allport's treatment of Richardson's study in his *Social Psychology* (1).

TABLE 8
DIFFERENCES IN ADAPTIVENESS OF RESPONSES MADE
(in Percentages)

	Facing total situation	Facing partial situation	Com- promise with reality	Non-adaptive response
Sorority		26.00	12.00	62.00
Non-sorority	1.00	24.00	30.00	45.00
Women		25.00	21.00	54.00
Fraternity	1.00	26.00	21.00	52.00
Non-fraternity		54.00	14.00	32.00
Men	1.00	39.00	18.00	42.00
Men and women	0.47	31.51	19.40	48.50

of avoidance (indifference reaction). Richardson reported 71% of the cases to be attributive; 18%, of contrary reaction; and 11%, indifference reaction. Only 18 instances, or 4.66%, of contrary reactions were reported by our subjects. We found it practically impossible to classify our responses under these three captions. Twenty-six per cent of our responses could be classified as being practically entirely attributive; 33% as being dominantly attributive; 20% as a mixture of attributive and contrary; 3% as a mixture of indifference and attributive; 8% as a mixture of acceptance and attributive; 5% as self-condemnatory and attributive. That is, in 95% of the instances some of the attributive attitude was manifested; in 59% it was the dominant attitude. There was but one instance of acceptance and one of indifference not combined with attributive.

The adaptiveness of the responses made was evaluated by classifying all the experiences reported under the captions indicated in Table 8.

The foregoing results are interesting in the light of F. L. Wells's (30, p. 33) expression concerning the present non-adaptiveness of anger. "In days, when contests between men depended more upon simple bodily strength than is now the case," says he, "anger was useful because it made the strength discharge more vigorously. It has small value when it must be restricted to such externally useless reactions as clenching the fists and teeth; yet it persists. These reactions used to be good for the individual but are now bad, because time and circumstances have changed. Don Quixote is a psychopath because his behavior is adapted only to an age gone by." The facts reported in this paper indicate that anger responses are non-adaptive

in almost 50% of the instances. But a study of other relevant factors, particularly the causes and after-effects as related to differences in source of anger between the sexes, as well as other differences between the organization groups and independents previously reported, suggests that anger is not necessarily any more a symptom of psychopathy than is apathy. Whether desirable or undesirable, anger responses are normal. What is abnormal is an exaggerated manifestation of such responses, responses that are out of proportion to the sources or stimuli which aroused the anger responses or to the evolving social situation. The differences between the organization groups and independents in their percentages of non-adaptive responses reported in Table 8 may be said to be due to the fact that the "indulgences" cultivated in fraternities and sororities are more adapted to an age gone by.

SUMMARY OF FINDINGS

The controlled diaries of anger experiences for one week by 93 college students yielded 393 anger responses for analysis and comparison with 145 anger responses reported by 51 college girls reported in a previous study. Sex, home, and community differences in frequency, duration, time of occurrence, impulses felt, responses made, and after-effects experienced were investigated. The findings may be summarized as follows:

1. *Frequency.* The average male student reported almost six anger experiences a week; the average woman, four. Men average 39% more anger experiences per week. Fraternity men average only 4% more than non-fraternity. Sorority women average 14% more than non-sorority.

2. *Time of occurrence.* Organization groups (fraternity and sorority groups) average a much larger percentage of anger than independents on Mondays and Tuesdays. On Wednesdays, Thursdays, and Fridays the independents average somewhat more; and, on Saturdays, very much more. Sunday is low day for all, more so for the organization groups. Barnard girls reported their largest number of anger responses on non-school days, whereas the Oregonians, considered as a whole, report the least number of anger responses on school holidays. Week-ends in New York apparently mean for Barnard subjects a wider range of activities to select from and also greater possibilities for disappointments and irritations.

The day of the week and the time of the day on which college

students get angry seemed to be determined largely by the organization of their home-life (i.e., whether they do or not live in a fraternity or sorority house) and by the nature of the community in which the college is located.

3. *Condition before situation arousing anger.* Roughly, 40% of the time the college students are in an unfavorable condition or state of disequilibrium before the anger situation arises. The organization groups are more often in such condition before experiencing anger.

4. *Duration of anger.* The duration of anger responses ranged from 1 minute to 48 hours. Fifteen minutes is the average. The average duration of the fraternity group is somewhat larger than it is for the non-fraternity group. Samplings of experiences which lasted for long and short periods of time are reported in the paper proper.

5. *Motivation.* The thwarting of self-assertion accounts for 86.32% of the anger experiences. More than 50% are reactions to persons. Very striking sex differences in thwarting of self-assertion are reported. Sixty-four per cent of the women's responses are reactions to persons—47% defensive, 19% aggressive. Only 36% of the men's responses are reactions to persons—29% defensive and 7% aggressive. Forty-seven per cent of the responses of the men are defensive reactions to things, whereas only 26% of the responses of the women are such. Illustrations of masculine and feminine sources of thwartings are reported.

6. *Responses made during anger.* Excited talking or angry exclamation is the most frequently reported response made during anger. Angry, sarcastic, or sulky retort is another frequently reported response. These two verbalized responses include 40% of all responses given. A non-resistance, "contrary-reaction" response is found in only 4% of the experiences. Thirty-eight other varied responses are reported.

7. *Impulses felt.* Men experience the impulse to do physical injury to offender 7% more often than women. The most frequently reported impulse by all groups is to make a verbal retort. "To cry, scream, swear, jump," is a dominantly feminine impulse. Thirty-three other impulses are reported.

8. *After-effects.* Almost two-thirds of the anger responses are followed by unfavorable after-effects symptomatic of a dissociative trend. In only 15% of the cases does the after-effect indicate an improved self-feeling symptomatic of an integrative trend.

9. *Socialization of responses.* The anger responses of the college students are non-adaptive in almost 50% of the instances.

CONCLUSION

In conclusion it can be said that anger responses as manifested by college students are complicated and variegated. Prepotent reflexes and habits, mental mechanisms, and social situations are all entailed. The causes or stimuli which arouse anger range all the way from a thwarting of a desire to do nothing to the interference with a desire to do everything. The impulses felt during anger range from a desire to injure, and even kill the offender, to serious self-injury, and from flight to fight. The responses during anger may be dominantly verbal, physiological, psychological, or social in nature and may range from a pleasant reply to doing violence to the offender. The after-effects range from a very reduced self-feeling to feelings of exalted self-importance. The organization of home-life and geographic setting play large rôles in determining the time of anger occurrences and the sex of the individual influences the sources of irritation. The validity of lists of emotions and related impulses, which psychologists associate with the name of McDougall, and other similar lists seem very questionable in the light of these findings. Such lists apparently disregard the rôle of psycho-social factors in influencing behavior. Questionable also in the light of the large variety and complexity of responses is the classification of human emotions in terms of predetermined purposes. Strictly speaking, there seems to be no such thing as an anger response. There are as many different manifestations as there are configurations of behavior patterns and social situations. There can be as many levels of description as there are levels of emergence to observe and investigate.

An understanding of students' adjustments in anger calls for more than a few facts about the physiology of emotions, more also than a labeling of mental mechanisms involved, more than a study of the history of anger indulgences. An understanding of anger calls for an integration of these and other knowledge areas. In short, a study of anger is a problem in psycho-social dynamics which can be studied by experimental social psychologists. In the use of "controlled diary methods" for investigating anger and similar problems one week seems to be the shortest period of time which will yield a representative sampling.

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Psychological Service Center
St. Louis, Missouri

LES ADAPTATIONS DES ÉTUDIANTS PENDANT LA COLÈRE

(Résumé)

Cet article rapporte les résultats d'un essai fait dans le but de comprendre la nature des réponses de colère des étudiants dans leur relation aux adaptations de personnalité en employant une méthode qui fournit des renseignements à un niveau psycho-social de description. Le sexe, l'organisation de la vie familiale et le milieu géographique ont été les facteurs étudiés. On a obtenu les faits de la colère en employant un journal contrôlé pendant une semaine. Les sujets ont été 58 femmes et 35 hommes, dont environ la moitié ont demeuré dans des clubs universitaires ("sororité" ou "fraternité").

Les résultats indiquent que les stimuli de la colère varient entre un désir contrariant de ne rien faire à un désir contrarié de tout faire. Le nombre moyen des expériences de colère pendant huit jours rapportées par les hommes a été de 5,90; par les femmes, de 4,73. La durée moyenne en a été de quinze minutes. La source a été la contrariété de la agressivité personnelle dans 86,32% des cas. Pour les réponses des femmes, 64% ont été des réactions aux personnes, 26% celles aux choses, et 10% organiques ou de milieu. Une perte d'équilibre avant l'expérience de la colère a été rapportée par 47% des groupes des clubs et par 31% des autres sujets. Les impulsions éprouvées ont varié entre le désir de tuer l'offenseur et de se blesser sérieusement. Les réponses ont varié entre une réponse aimable et la violence de l'offenseur et ont été non adaptées dans presque 50% des cas. Les effets suivant la colère ont varié entre une confiance diminuée en soi et une exagération de l'importance de soi—une tendance de dissociation dans 63% des cas et une tendance intégrante dans 15,24%. L'organisation familiale et le milieu social ont influé d'une manière significative sur les variations de la colère par heure et par jour.

MELTZER

ANPASSUNGEN AN DEN ZORN BEI STUDENTEN UND
STUDENTINNEN

(Referat)

Der Verfasser bietet uns in diesem Artikel die Befunde aus einer Untersuchung an, die unternommen wurde, um die Art der Zornreaktionen von Studenten, in ihrer Beziehung zu Anpassungen der Persönlichkeit, mit einer Methode zu erforschen, welche Daten zur Beschreibung dieser Reaktionen vom psychologisch-sozialen Standpunkt liefern würde. Als Einwirkungen untersuchte man Geschlecht, Einrichtung des Hauslebens, und geographische Inszenierung [geographical setting]. Die Tatsachen über den Zorn wurden ermittelt durch die Verwendung eines, eine Woche lang gehaltenes, kontrolliertes Tagebuch. Als Versuchspersonen dienten 58 Frauen und 35 Männer, von denen die Hälfte in organisierten Heimen (Brüderschaften oder Schwesterschaften) wohnten.

Die Befunde weisen darauf hin, dass die zornerzeugenden Reize sich von einem hemmenden Verlangen, gar Nichts zu tun, bis zu einer Störung des Verlangens, Alles zu tun, erstrecken. Die Durchschnittszahl der im Laufe einer Woche erlebten und notierten Zornerfahrungen war bei Männern 5.99 und bei Frauen 4.73. Die mittlere Dauer des Zornes war 15 Minuten. Der Ursprung des Zornes war in 86.32% der Fälle eine Verhinderung der Selbstbehauptung. Unter den Reaktionen der Frauen waren 64% Reaktionen auf Menschen, 26% Reaktionen auf Dinge, und 10% organisch oder durch äussere Umstände bedingt [situational]. Von den Reaktionen der Männer waren 36% Reaktionen auf Menschen, 26% Reaktionen auf Dinge, und 18% organisch oder durch äussere Umstände bedingt. Ein schon vor dem Zornerlebnis bestehender Mangel des Gleichgewichts [dis-equilibrium] wurde von 47% der in organisierten Heimen und von 31% der selbstständig Wohnenden notiert. Die empfundenen Antriebe erstreckten sich von dem Verlangen, den Verletzer [offender] zu töten, bis zur ernstlichen Selbstverletzung. Die Reaktionen rangierten von einer höflichen Antwort bis zur Gewalttätigkeit dem Verletzer gegenüber und waren in fast 50% der Fälle nicht zur Anpassung geeignet [non-adaptive]. Die Nachwirkungen erstreckten sich von vermindertem Selbstgefühl bis zur exaltierten Selbstwichtigkeit. Die Richtung der Nachwirkungen war in 63% der Fälle eine zersetzende [dissociative] und in 15.24% eine integrierende. Die stündliche und tägliche Variationen des Zorns wurden durch die Einrichtung des Hauslebens und die Inszenierung der Gemeinde bedeutend beeinflusst.

MELTZER

THE EFFECT OF FEAR UPON ESTIMATES OF THE MALICIOUSNESS OF OTHER PERSONALITIES*

From the Psychological Clinic, Harvard University

HENRY A. MURRAY, JR.

The present paper describes an attempt to demonstrate in quantitative terms the generally recognized fact that the emotional state of a subject may affect his judgments of other personalities. It is one of several experiments now in progress in this laboratory which have been designed to expose some of the internal—physical and psychical—factors which influence a subject's perceptions, interpretations, and appraisals of the objects and situations in the world about him.

The diagnosis of traits of character from the face depends, it is often said in common language, upon (1) the observation of the features (physical signs) and (2) the interpretation of them on the basis of associations—associations which in the past have been found by the observer to exist between somewhat similar physical signs and particular types of behavior. Psychologically, we speak here of two processes which may for convenience be differentiated, namely, perception and apperception. Such is the nomenclature, at least, which we have provisionally adopted for the purposes of this discussion. The term *perception* is confined to the *conscious* recognition of configured sense impressions or segregated sensory wholes; whereas *apperception* is used to designate the process—whatever its antecedents—whereby meaning, in other than sensory terms, is assigned to the physical stimulus. This use of the term *apperception* is at least within the definition given by Stout. For, according to this authority, it is by the process of *apperception* that “a presentation acquires a certain significance for thought by connecting itself with some mental preformation as this has been organized in the course of previous experience” (3, p. 110). The term is used to include understanding, interpreting, classifying, subsuming, and so forth.

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The distinction we make between perception and apperception is, of course, somewhat arbitrary. For, under most conditions, the two processes are inseparably fused. For instance, as Köhler has so succinctly remarked: "If in a friendly-looking face we try to separate the mere bodily configuration and the friendliness, we find the task rather difficult, as long as we look at the whole face and do not analyze the face itself as a mosaic of colored spots" (1, p. 239).

Now, the understanding of other personalities from their features is usually more successful than can be accounted for on the basis of what was consciously perceived. And so, since in such cases the visual apparatus is the only path of communication, there must be some retinal stimulation which is not translated into conscious perception, but which, nevertheless—through some other effects—determines apperception. These other effects are not far to seek when we bear in mind that the external world comes to a subject, not solely in the guise—to use Whitehead's terminology—of *presentational immediacy* (pure sensory experience) but also in the guise of *causal efficacy* (4). That is to say, physical changes are activated in the body of the subject which are of the sort that may be cognized as feelings, emotions, and kinaesthetic sensations. Such activations are without doubt most fundamental, preceding in ontogenetic development the clear *conscious* perception of the stimulating object. Certain faces, for instance, arouse approach movements and others arouse withdrawal movements in the child long before the capacity for an accurate representation of the perceived object exists. Since experience shows that such movements may be modified by slight changes in the stimulating object, there must be at this time an accurate physical differentiation of sensory impressions. But since no report may be given of them, we must admit that perception—if we wish to use the term—is unconscious. Now, when language is acquired, it is probable that the estimates of other persons which a child expresses verbally are unwittingly made on the basis of how the body responds to their presence. If the child smiles, for instance, the person confronting it is "nice and good," but if it averts the head the person is "bad."

It may also be that unconscious imitation of the expression and gestures of others—a process so common in children—arouses feelings and emotions somewhat comparable to those occurring in the perceived object, and that this too is a factor which aids under-

standing. In this connection we are reminded of the young lad described by Poe in *The Purloined Letter* who used to mimic the facial expression of his opponent in a gambling game to discover whether it made *himself* feel intelligent. By this means he estimated the mental calibre of the other boy and in accordance with the verdict directed his own moves in the game.

The point is that certain physical features of the object which the subject does not consciously perceive are nevertheless physically affecting his body, and though he may be unable to report upon these internal happenings, they are nevertheless affecting his conscious appraisal of the object.

This is not the place to discuss in detail all the processes which contribute to a knowledge of our fellows. We merely wish to suggest how it may come about that apperceptions of the personality (feelings, motives, and probable behavior) of others are commonly influenced—as experience seems to teach—by the total bodily state of the perceiving subject. Our hypothesis would be, then, that certain meanings, or categories we might call them, such as “friendly” and “unfriendly,” become integrated with certain muscular sets and emotions, and when the latter are aroused the former will be mobilized and come to mind. These intermediary physical processes would seem on superficial glance to be entirely irrelevant to the task at hand, but when we consider that they are conspicuously present—at least in an imaginatively representative form—in persons, such as novelists, whose insight into character is generally regarded as most acute, we have cause for reflection.

Now, when such processes can be accounted for by reference to the presented stimulus and its similarity to past stimuli, and hence to *traces* (a fictional concept) in the mind of the subject, we should consider them—at least for that subject—legitimate, normal, and objectively valid. If they happen to be inappropriate and unadaptive, well, it is a matter of ignorance, insufficient experience, and so forth. When, however, the internal processes which are determining apperception have recently been aroused by some other essentially dissimilar and irrelevant stimulus, or may be shown to be more or less inveterate in the subject, then we must refer to another process—a process which distorts the external world or adds something to it which is not there.

According to the terminology of some psychologists the process whereby psychic elements—needs, feelings and emotions, or images

and contexts of images activated by such affective states—are referred by the experiencing subject to the external world without sufficient objective evidence is called *projection*. When this process is active, what is in truth mental and within the personality comes to appear as if it were outside the personality. We may speak of *perceptive projection* when sensory elements are projected, i.e., when an image takes on the vividness, substantiality, and out-there-ness of a real object—as in a dream and in an hallucination—or when an image transforms or makes additions to the actual physical features of an inadequately perceived real object so that the latter is taken for the object of which the image is a representation—as in an illusion. And we may speak of *apperceptive projection* when non-sensory elements are projected. This occurs (1) when imaginal contexts, or the categories under which the activated images are subsumed, are believed, with insufficient objective evidence, to be descriptive of or to pertain to objects in the environment—as in delusions; or (2) when the needs, feelings, and emotions themselves, rather than the images or imaginal meanings activated by them, are believed by the subject to be existent in other personalities—also as in delusions. The former might be termed *complementary apperceptive projection* and the latter *supplementary apperceptive projection*.

An example of perceptive projection would be the case of a girl who mistook a stranger in a crowd for the friend whom she was hoping to meet, or the case of a criminal who believed that he saw a detective with whom he was acquainted following him down the street. An example of complementary apperceptive projection would be the case of a guilt-ridden young man who believed that his elders were secretly condemning him; whereas an example of supplementary apperceptive projection would be the case of an unhappily married woman who believed that most of her married friends were unhappy.

The reader may have noticed that in defining projection we spoke rather nonchalantly of images; we said that hallucinations were projected images and so forth. How can they be projected images, when for the experiencing subject there are no images; there are only external objects? The answer is that they are projected *unconscious* images—a purely fictional concept. In dreams and in hallucinations we know that they are not external objects which the subject perceives; nor is he conscious of imagery in the usual sense. Common experience, however, bears witness to the inseparable gradations between dreams and phantasies—the latter being admittedly com-

posed of images—as well as to the similarity between memory images and some of the objects which appear in dreams; and consequently some psychologists have been led to speak of projected unconscious images, since *qua* images the subject is unaware of them. It will be remembered, furthermore, that Prince (2) performed experiments upon an hallucinating dissociated subject, and by means of automatic writing demonstrated to his own satisfaction that the hallucinated objects were similar to the imagery of a contemporary unconscious (or co-conscious) mental process.

Despite such considerations and such experiments, the hypothesis of unconscious psychical events is still refuted by other psychologists—principally on logical grounds. This is not the time to debate the point. We ourselves must simply admit that we feel the need of this concept to describe in detail the phenomenon of projection. For, as far as we know, only elements which are not at the moment conscious may be projected. It is supposed that if the subject could adopt the introspective attitude some of these so-called unconscious images would become conscious, but because attention is forcefully and passionately centered upon the external world, or because the subject is in sleep or in some other state hardly to be defined—abstraction or dissociation—images attain the apparent substantiality of external reality; they appear to be “out there.” An illusion exemplifies the same process but to a lesser degree. In this case there is some real object, but what the subject perceives is a composition product of the real object and the unconscious mental image. The greater the ingress of the latter the more does the event resemble an hallucination.

What a subject might say when presented with a vaguely perceived and unrecognizable object is this: “It makes me think of so and so,” or: “It arouses images of so and so.” That would be conscious imagery and not projection. If the subject “guesses,” “supposes,” or “imagines” it is “so and so,” we speak of a pseudo-projection. For, strictly speaking, the term projection should be used only when the subject is convinced of the true existence outside himself of the object or process in question. A projection is morbid only when it is the result of some obsessive idea or continuously dominant need which frequently operates to transform the real world in a particular way.

Projections, then, by distorting a subject's recognition and interpretation of external reality prevent a detached and disinterested objectivity. They may, nevertheless, serve the cause of truth. For

instance, a young man who has suffered undeservedly through the treacherous and malicious behavior of others—he has a fixed feeling of inferiority, let us say—may thenceforth suppose that strangers and acquaintances whom he meets are prompted solely by selfish motives, and at least towards him are critical and scornful. He may, indeed, like Timon of Athens, generalize his particular experiences and become a misanthrope. In so far as such a man overemphasizes the selfishness of human beings to the exclusion of their other more engaging traits he is the victim of a complementary apperceptive projection. We might say that he is mistaken in his proportions, since he attributes so much evil and so little good to others. But we must not lose sight of the fact that in some respects he may be a better observer than the average citizen, since as a result of his particular sensitiveness to malice he may very well discover and precisely analyze subtle and hidden forms of it which others have neglected, and so make a valuable contribution to psychological knowledge.

We have discussed the probable influence of bodily changes upon apperception, and how, when the former are relatively unconnected with the immediate stimulus, misapperceptions or delusions may occur. These we agreed to call apperceptive projections. Finally, we proposed the hypothesis of unconscious images to explain both perceptive projections and complementary apperceptive projections.

Such were the speculations which led us to the present enterprise: an attempt to prove by experiment that a functional relationship between emotional and apperceptive processes exists normally, and, by changing the former, a qualitative or quantitative alteration of the latter will occur. More specifically, we might characterize this experiment as an attempt to produce measurable variations in the apperception of benevolence or malice in other people by the excitation of fear in the apperceiving subject, the variation or exceptionality of the apperception in each case being estimated by comparing it with the subject's habitual apperception of the same object.

The particular form of our hypothesis and the technique devised to test it were based upon such a common phenomenon as that of a person who in a fear-invoking situation—for instance while walking through a "tough" neighborhood at night—apperceives some of the strangers whom he encounters as "dangerous characters." It was supposed that, if, for purposes of standardization, photographs of people, rather than living personalities, were used as material to be judged, the subjects—especially children—after a fear-invoking sit-

uation would estimate the faces in the photographs to be more malicious than they would estimate them to be when they were free from fear. Such at least was our hypothesis, and when the daughter of the author planned a week-end country house-party of five girls, eleven years of age, it seemed that this might provide an opportunity to test it. It was supposed that during this party there would be many chances for control tests after relatively normal pleasure-invoking circumstances, and, since the children wanted to play the game of *murder* in the evening, it seemed that a fear-invoking situation would occur in the natural course of events.

We judged that the game of *murder* alone would not be sufficiently exciting, so we planned to tell the first half of a ghost story after the end of the game, on the supposition that the combination of the two situations would give rise to a state of anxiety which would persevere long enough to affect the results on a test given immediately afterwards. At the last minute, however, circumstances interfered with the telling of the ghost story, and so we were forced to depend upon the efficacy of two games of *murder* for the evocation of fear.

TECHNIQUE

Thirty photographs approximately 5.5 x 7.5 cm. in size—most of which were taken from the magazine *Time*—were mounted upon white cards and divided into two roughly comparable series; each of which was composed of eleven photographs of men and four photographs of women, all of them unknown to the subjects of the experiments. The first series of fifteen faces was called Test A, the second series was called Test B.

Tests were given on three occasions as follows:

First Occasion. Test A after pleasure-invoking situation (control). This experiment was performed at 12:30 P.M., Saturday, after the children had returned from motoring about the country.

Second Occasion. Test A and Test B after fear-invoking situation. This experiment was performed at 7:30 P.M., Saturday, after the children had played two games of *murder*. The thirty photographs were arranged in one series so that the even numbers belonged to Test A and the odd numbers to Test B.

Third Occasion. Test B after pleasure-invoking situation (control). This experiment was performed at 12:30 P.M., Sunday, after the children had returned from hitching behind a sleigh. In this way each test (A and B) was performed twice—after a fear-invoking

situation and after a pleasure-invoking situation (control). We shall speak of the two trials of Test A together as Experiment A, and the two trials of Test B together as Experiment B.

On all three occasions each of the subjects—five girls, eleven years of age (designated as Mary, Jane, Lou, Jill, and Nan)—was seated at the same place, separate from the others, in a well-lighted room. The experiments were conducted as group tests, the photographs being passed around from subject to subject in order.

For the first experiment instructions were as follows:

"I shall show you a series of fifteen photographs of persons whom you do not know. Some are nice, some are bad, and some are just average. I want you to guess from the photographs how good or how bad they are."

At this point each S was given a sheet of paper on which were ruled fifteen lines divided into three columns. The instructions were continued as follows:

"On the sheet of paper which I have given you there are three columns. In the first column each line is numbered from one to fifteen. These stand for the numbers of the photographs. When you are presented with a photograph—each photograph is numbered from one to fifteen—please look at the face and immediately decide how good or how bad is the character of the person. It has been found that you are more likely to be right if you are guided by your first impression than if you try to reason it out. The mark or rating for goodness or badness which you give the person should be placed in the second column opposite the number of the photograph. The scale for marking runs from one to nine as follows: 1=extremely good, i.e., generous, kind, loving and tender; 2=very good; 3=good; 4=fairly good; 5=average; 6=fairly bad; 7=bad; 8=very bad; 9=extremely bad, i.e., cruel, malicious, and wicked. Remember now: 5 is average, 9 is extremely bad and 1 is extremely good.

"In the third column there is space for you to write down what you think the person in the photograph is thinking or saying. You should spend about thirty seconds on each photograph, but I shall allow you more time if necessary."

After these directions were read and explained, two sample photographs not belonging to the series—one of a man smiling and one of a man scowling—were shown to the children and they were asked to announce their ratings so that all could hear. This, so

that the experimenter could be certain that the directions were understood.

On the second occasion, that is, after the fear-invoking situation, the instructions did not have to be repeated. It was pointed out, however, that there were now thirty instead of fifteen faces to be diagnosed.

For those who are not acquainted with the game of *murder* it may be said that it is played after dark throughout a house with all lights extinguished. The players commence by drawing lots from a hat; one of the players, unknown to the others, drawing the lot of murderer. After the draw, the players, with the exception of the one amongst them who has drawn the lot of detective, sneak about the house in the dark until the murderer "kills"—by touching—any one of the players whom he chooses. The victim, after counting ten, yells aloud, and then all the players join the detective, who proceeds by cross-questionings to discover the culprit. Everyone must tell the truth except the murderer, and he may lie as much as he likes.

Among children there are individual differences in sentiment towards this game. Some children love it and play it without disquietude; others wish to play but experience an unpleasant apprehension throughout; still others are afraid to play and avoid it if possible.

RESULTS

At the cross-examination after the "murder" one of the subjects, Mary, said that she was "frightened to death" and again: "I was so scared I hid under the table the whole time." Lou also admitted that she was afraid. No other remarks of a like nature were volunteered, and it was our general impression that the amount of occasioned excitement was less than usual.

That the two games of *murder*, however, were effective in arousing some degree of fear was attested not only by the results of the experiments, but also by an event which occurred in the early morning of the next day—that is, on Sunday. This event bears reporting since it helps to confirm the validity of the tests. It happened in this way. Jane, who had been sleeping in one of the spare rooms with Lou, woke the household at six-thirty in the morning to inform us that for more than an hour two burglars had been prowling about her room. She was in tears and shaking with fright

while she explained that it was not a dream but a fact. She had seen the two men clearly with her eyes open; they had taken things from the closet and from the bureaus and had escaped finally by way of the window. She had heard the dogs chase them down the lane, and if we came to the window, she assured us, we would see their tracks in the snow. A careful examination of the premises, however, proved that no one had been about and that nothing had been stolen. Evidently Jane had had a vision, a hypnapompic vision—because, as she explained, it was real and nothing like a dream—due to a perceptive projection. Never before had she had such a vision, so it is probable that the *murder* game was the exciting agent which aroused the imagery. This was more of an effect than we had anticipated. Jane insisted despite the protestations of her companions that the event had really occurred; in fact, it seemed very important to her—as if, let us say, her sanity depended upon it—that she should be believed. None of her friends, however, gave credence to her story during the day. It was not until nightfall that Mary and Lou—but not Jill and Nan—were inclined to believe her. Belief for Mary and Lou seemed to depend upon the uneasiness aroused by darkness. The outcome of the matter was that Jane, Mary, and Lou announced that they would not sleep in the ill-fated room “for anything” and, even when given another room, they insisted that we should look for burglars in the closet and under the bed, draw the shades down to the sill, speak in a low voice so that the burglars—supposedly sneaking about the house—should not hear, put a night-light in the room and visit them at intervals throughout the night to make sure that everything was all right. Jill and Nan, however, consented to occupy the spare room where the burglars had been seen and without any ado dropped off to sleep. This difference in attitude between Mary, Jane, and Lou, on the one hand, and Jill and Nan, on the other, should be borne in mind when the test results are examined.

Now let us turn our attention to the experiments. To discover whether fear affected the subjects’ judgments of personality we should compare the results obtained after *murder* in each of the two tests (A and B) with those obtained after normal conditions. In making this comparison we should bear in mind that, according to the adopted method of scoring, an increase in the rating of a photograph signified an increase in the apparent badness (maliciousness) of a face, and a decrease in the rating signified an increase in the apparent goodness (benevolence) of a face.

TABLE 1

S's	Experiment A			Experiment B			Both experiments
	Average rating per photograph	After fear	Difference in rating	Average rating per photograph	After fear	Difference in rating	Difference in rating
	Control			Control			
	<i>a</i>	<i>b</i>	$\frac{b-a}{c}$	<i>d</i>	<i>e</i>	$\frac{d-e}{f}$	$\frac{c+f}{2}$ <i>g</i>
Mary	4.53	5.73	+1.20	6.47	5.40	+1.07	+1.15
Jane	6.53	7.47	+0.94	7.80	7.00	+0.80	+0.87
Lou	5.67	6.07	+0.40	6.07	5.13	+0.94	+0.67
Jill	5.60	5.93	+0.33	5.33	5.53	-0.20	+0.06
Nan	6.33	6.13	-0.20	6.67	7.27	-0.60	-0.40
Average	5.73	6.26	+0.53	6.47	6.07	+0.40	+0.47

The results were as follows: In Test A, as compared with the scores obtained after ordinary conditions, the average ratings after the fear-invoking situation remained the same in 1 photograph, were lower (indicating more "goodness") in 2 photographs, and were higher (indicating more "badness") in 12 photographs. In Test B, as compared with the results obtained after ordinary conditions, the average ratings after the fear-invoking event remained the same in 2 photographs, were lower (indicating more "goodness") in 3 photographs, and were higher (indicating more "badness") in 10 photographs. The slightly less significant results in Test B, as compared with Test A, might be explained by supposing that Jane's recital of her burglar vision aroused in her friends (by suggestion) subjective states which were somewhat similar to those which followed *murder*, and so nullified to some extent the significance as a control of the Sunday test trial. If the results of the two experiments (A and B) are taken together, it appears that out of a total of 30 photographs 22 (73%) were scored higher—that is, the character of the faces in these photographs were judged to be more malicious—after the fear-invoking event than after normal pleasure-invoking events; or, to state it otherwise, it appears that out of 27 photographs, the average ratings of which were different under the two conditions, 22 (81%) were scored higher after fear.

The results might have been more striking if the experimenter had not made the mistake of including several photographs of per-

sons whose faces were so distinctly forbidding that some subjects assigned to them the maximum mark of 9 on the control test, thereby making a further increase of rating after fear impossible. Out of a total of 150 [15 (photographs) \times 5 (subjects) \times 2 (tests)] ratings assigned after ordinary conditions, there were 19 ratings of 9 which did not change when conditions changed. Of the 131 remaining ratings, 96 (73%) were different after the fear-invoking situation; and of the 96 ratings which were different, 67 (70%) were higher (indicating more badness).

An examination of the tabulated results reveals the fact that for the five subjects there was an average change per photograph of $+0.53$ in Experiment A, and of $+0.40$ in Experiment B; the average of the two tests being $+0.465$, or approximately one-half a point towards badness per photograph. In other words, after the fear-invoking situation one-half the faces were judged, on an average, to be one point less good (more wicked) than they were judged after ordinary conditions. There are, of course, other methods of scoring the subjects, but, since intercorrelations between the results obtained by a variety of methods indicated that the present system of scoring was the best, the other methods have not been included in this report.

These results seem to show that complementary apperceptive projection did occur in the subjects, or, to state the matter more specifically, that fear tended to increase the apparent maliciousness of other personalities.

Examining Table 1 from the point of view of individual differences it may be observed that of the five subjects, one (Nan) in Experiment A and two (Nan and Jill) in Experiment B had lower scores after the fear-invoking event; whereas four subjects in Experiment A and three in Experiment B had higher scores after this event. If the two experiments are taken together it appears that one subject (Jill) showed relatively little change in her ratings, whereas the four other subjects did change. Of the four who did change, three, or 75% of them (Mary, Jane, and Lou) judged faces as more malicious after *murder* than after ordinary conditions.

As a part of the test the children had been asked to write down what they thought the person in each photograph was saying or thinking. We guessed that fear might make the supposed thoughts more frightening and melodramatic, but there were few differences between the thoughts written under ordinary conditions and those

written under exceptional conditions. What changes did occur, however, were for the most part in the positive direction. For instance, in Jane's paper after ordinary conditions a woman said: "What shall I do next?" and after *murder* she said: "So all your children are sick. Well I hope they die"; and after ordinary conditions a man said: "I'll do it if I like," and after *murder* he said: "You brute, you fool, you hypocrite!"; and after ordinary conditions a man said: "Yeah, I understand" and after *murder* he said: "So you *got* them, did you?"

Though the results from this part of the test were inconclusive as far as the verification of our hypothesis was concerned, they did give evidence of both complementary and supplementary projection. They afforded hints, indeed, of how the wind was blowing in each subject's mind. Jane, for instance, who hallucinated burglars on Sunday morning, wrote on Saturday the following thoughts for four of her subjects:

"You give me back that money or I'll shoot."

"Gosh. I've gone broke."

"How did you make out? Did you get any money?"

"Have you got the money?"

Since Jane was the only child who made any mention of money or burglars, her written sayings might almost have been taken as prognostically significant. On Sunday, after the hallucination, she wrote the following thoughts for three of her subjects:

"I went in to a room last night in Topsfield" (it was in Topsfield that these events occurred).

"I got the scare of my life last night" (supplementary apperceptive projection).

"Well, well, have any more ghosts come to you?" (this suggests that at this time she was doubting the substantiality of her visionary experience).

THEORETICAL CONSIDERATIONS

To explain the positive results obtained in these experiments it seems that we should take account of at least three processes: (1) the activation of fear by the game of *murder*; (2) the perseveration of this emotion; and (3) the projection of integrated elements into the material to be diagnosed.

All of these processes must have occurred, it seems, in the three

subjects who gave consistently positive results (Mary, Jane, and Lou). The two who gave negative results (Jill and Nan) may not have been aroused to anxiety by the game; or, if they were so activated, the emotion may have dissipated itself before the test was given; or, finally, they may have been experiencing some anxiety during the test but the emotion did not affect their judgments of personality.

That the positive results depended to a large extent upon the evocation of fear is suggested by the fact that the only subjects (Mary and Lou) who spoke of being afraid during the *murder* game were both in the positive group. The third member of the positive group (Jane) happened to be the "victim" in the first game of *murder* and the "murderer" in the second, circumstances which militate against the admission of fear even if the subject is experiencing it.

We must suppose that perseveration and projection were both present to account for Jane's vision of burglars ten hours later. That Mary and Lou were the subjects who gave credence—but only after nightfall—to the substantiality of Jane's vision is a fact which fits in with the other positive responses given by these two children. It demonstrates, moreover, the determining effect of emotion and of projection in the genesis of belief.

It is difficult to give a satisfactory account of the psychological processes revealed by our findings without reference to a theory of motivation. But since the theory which we believe best describes the functional aspect of human nature has not yet found its way into the literature, and hence cannot be referred to by name, and since space does not allow for an outline of it at this time, we shall omit mention of the particular need (instinct) or combination of reflexes aroused in our subjects. In lieu of this, we shall refer all the bodily affections which occurred in our subjects to the emotion of fear, since its existence in children after playing *murder* is easy to establish by means of subjective reports as well as by the observation of its usual objective correlates.

In accordance with our introductory speculations and hypotheses we should attempt to explain the results of this investigation by saying that the bodily processes operative in the subjective experience known as fear were aroused by the game of *murder*; that these in turn mobilized the integrated images and categories (the more general imaginal meanings). We have in mind such categories as "danger-

ous situations," "criminals and burglars," "malicious characters," and so forth. Then, when the test was presented to the children, the photographs which fulfilled the requirements of sufficient similitude functioned as foci for the projection of these images and categories, a photograph, for instance, being assimilated to the category "very bad" instead of to the category "bad" in which it seemed to fit best when the subject was without emotion.

It was as if the subjects, experiencing an emotion without adequate stimulus, sought something in the external world to justify it—as if the idea had come to mind: "there must be malicious people about." The result of this was that the photographs appeared to change in the direction of adequacy as stimuli. It is clear that we have here a typical complementary apperceptive projection.

Two other processes which usually accompany a state of emotional excitement may have occurred in this experiment—preferential perception and perceptive projection.

By *preferential perception* we refer to the unconscious (unintentional) process by which attention is directed to objects in the environment similar to the traces (or images) integrated with the aroused emotion. The subject simply becomes aware of the external object, the preceding process of selection being unconscious. In the present experiment, it is not unlikely that the children's attention was attracted to special facial parts—parts which indicated "badness"—and that judgments were made on the basis of these.

Perceptive projection has already been defined. It may also have been operating in this test. The children, for instance, may have perceived the faces as physically different from what they actually were. In other words, mild illusions may have occurred.

These phenomena can be best explained, though we do not insist upon it, by the hypothesis of activated traces or unconscious images. The traces which are integrated with the bodily processes which make up the emotional state are there, as it were, below consciousness—ready to appear as conscious imagery or to modify events which are conscious, namely, perception and apperception.

That the supposition of active unconscious imagery is not an unwarranted hypothesis is indicated by the frequency with which imagery such as has been described occurs on the fringe of consciousness in the form of a phantasy which can be recalled immediately afterwards. Such imagery is *almost* unconscious in that it may never be in the focus of attention and may be recalled only in part and with

difficulty afterwards. The following is an instance of this familiar phenomenon.

One evening a subject was sitting alone in a somewhat isolated farmhouse reading *The Turn of the Screw*, the gruesome story by Henry James (fear-invoking situation). At an exciting point of the narrative the telephone bell rang and a strange man, who said he was a reporter, asked permission to motor over that very evening for the purpose of discussing a matter in which the subject was interested. Though it was already ten o'clock and the reporter was calling from a town twelve miles distant, the subject agreed to see him and returned to his reading. After a few moments he realized that his attention had been divided. Although he could give an account to himself of what he had been reading, he was also aware that an unintentionally initiated phantasy had been developing in the marginal realm of consciousness. In the phantasy an automobile had drawn up to the door and the supposed reporter entered the house. After a few introductory words the latter had drawn a revolver and a skirmish had followed in which the two men had rolled about the floor until by a clever twist of the wrist the revolver was disengaged from the gangster's hand and the subject became master of the situation. This phantasy represented the functional signification assigned to the strange voice on the telephone and the event which was to come. The subject was decidedly of the opinion that this would not have occurred if at the time he had been reading a story of a different kind.

The explanation of this event would be that fear had evoked imagery of "dangerous characters" to which the voice of the stranger had been assimilated; and with these compounded elements the mind wayed by apprehension had constructed a melodramatic reverie in the form of a tentative hypothesis, one might say, of what the future would disclose. This whole phantasy might easily have been unconscious. One might say that it was only by chance that the subject captured it out of the twilight zone of his consciousness (cf. a man capturing, losing, then recapturing the content of a dream as he wakes).

Now, if the subject had been less self-conscious and later had manifested a lowered threshold for the sound of an automobile coming down the drive (preferential perception), and when greeting the reporter had circumscribed his attention to the less kindly aspects of his face (preferential perception) or had unconsciously distorted

the features of the stranger so that physically he appeared to be different (perceptive projection) or, though seeing him without distortion, had interpreted his looks and gestures as signifying "bad intention" (apperceptive projection)—if these psychological events had occurred we should have explained them by referring to a mental process (activated in this case by the fear-invoking story) of which the phantasy was a component. If this phantasy had been unconscious—as it might well have been—we should have been forced to resort to the concept of unconscious psychic processes.

If the circumstances of the evening telephone call, however, had been sufficient, as a result of the subject's past experience under similar circumstances, to call forth the fear and the resultant phantasy, we should have spoken of the redintegration of danger images and categories without projection—the term projection being confined to the operation of irrelevant affections which in the present instance were aroused by the reading of the book. So much for the projection of unconscious images and meanings.

Now, from the standpoint of an interest in the individual differences of personality, we should like to know whether the two groups distinguished by this test—namely, the susceptible class (Mary, Jane, and Lou) with an average change per photograph of $+ .90$ points, and the non-susceptible class (Jill and Nan) with an average change per photograph of $- .17$ points—are characterized by personality differences which are more or less permanent. In other words, would these two groups show approximately the same difference in their responses to other comparable tests or to the same test at a later time or to somewhat similar circumstances in everyday life? We cannot, of course, give a positive answer to this question, but the following facts suggest that the tests did reveal some more or less consistent personality traits:

1. The coefficient of correlation (product-moment method) between Experiment A and Experiment B was $+ .84$.

2. The hostess of the week-end party who knew the children intimately, when the nature of the experiment was explained to her, guessed that Mary and Jane would score the highest. This prophecy was correct.

3. Jane's hypnapompic vision was a manifestation of the same process which was responsible for her high score on the test. Jane had never before experienced such a vision, but in the past few months had had several nightmares in which burglars figured prominently.

4. Mary and Lou came to believe in the truth of Jane's story about the burglars, but Jill and Nan did not.

Thus the behavior of the children during the week-end, the estimations of their temperaments by the hostess, and the results on both tests showed a considerable degree of correlation.

There is no generally accepted concept of type or trait to describe the response of the positive group as differentiated from the negative group. Psychologists have written of emotionality and of subjectivity, but, since these words have been used without precision, it is impossible to say whether our group of projectors should be subsumed under one or both of these headings. By definition there is no projection without affection or emotion, but there is no evidence to show that projection invariably parallels intensity of emotion. Other factors—such as conglomeration and the partial dissociation of the personality itself—seem to be important. *Conglomeration* is a name given to the psychical condition—as found in children—in which little or no differentiation is made between images and objects, between what is internal and psychical and what is external and substantial.

SUMMARY

Five girls, eleven years of age, estimated from photographs the degree of goodness (benevolence) or badness (maliciousness) of other personalities. These estimates were made under two different conditions: (a) after ordinary pleasurable activity in the sunshine, and (b) after two games of *murder* in the dark. A comparison of the ratings assigned under these two conditions revealed the following:

1. Seventy-three per cent of the faces were estimated by a majority of the group as more malicious when judged after the fear-invoking situation than when judged after ordinary conditions.

2. Of the four subjects whose ratings differed under the two conditions, three (75%) estimated the series of faces as more malicious after the fear-invoking situation than after ordinary conditions.

These results may be attributed to complementary apperceptive projection subsequent to the activation of an emotional state. The conclusion which may be drawn from this experiment is that under some conditions the emotion of fear will cause some experiencing subjects to increase their estimates of the maliciousness of other personalities.

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The Psychological Clinic
Harvard University
Cambridge, Massachusetts

L'EFFET DE LA PEUR SUR LES ESTIMATIONS DE LA MALIGNITÉ D'AUTRES PERSONNALITÉS

(Résumé)

Dans le but d'étudier dans un cas spécial l'effet des états intérieurs sur les estimations de la personnalité, on a fait l'expérience suivante: on a présenté deux groupes de quinze photographies l'un après l'autre à cinq sujets—fillettes âgées de onze ans—et on leur a demandé d'estimer le degré de bienveillance ou de malignité des personnes ainsi montrées. On a classé les estimations selon une échelle de neuf points; 1 signifiant "une personne extrêmement bonne", 5 "une personne moyenne", et 9 "une personne extrêmement mauvaise."

Les estimations ont été faites une fois après des conditions normales de jeu en plein jour; une fois après deux parties émouvantes du jeu *assassination* dans l'obscurité, et encore une fois le jour prochain après des conditions normales. On a fait les présentations en sorte que chaque photographie a été présentée deux fois—une fois après des expériences normales et une fois après des expériences qui ont fait naître la peur.

Les estimations ont montré en moyenne que les personnes photographiées ont été considérées plus malicieuses après la partie du jeu *assassination* qu'antérieurement ou plus tard après le jeu normal. Il y a eu un accroissement d'environ un demi-point pour chaque photographie par chaque sujet. Puisqu'il était évident que les enfants avaient éprouvé la peur pendant le jeu *assassination*, on a considéré que les résultats de l'expérience ont montré que la peur tend à faire que les sujets croient que d'autres personnes sont plus malicieuses qu'ils les estimeraient dans des conditions normales. On a offert d'autre évidence basée sur le comportement des enfants pour soutenir cette conclusion. On a classé le phénomène comme manifestation de la projection et l'a discuté ainsi dans ses aspects théoriques.

MURRAY

DIE EINWIRKUNG DER ANGST AUF ABSCHÄTZUNGEN DER
BOSHAFTIGKEIT ANDERER PERSÖNLICHKEITEN

(Referat)

Um in einem besonderen Fall die Einwirkung innerer Zustände auf Abschätzungen von Persönlichkeiten [appraisals of personality] zu untersuchen wurde folgender Versuch ausgeführt. Zwei Sammlungen von je fünfzehn Photographien wurden, der Rolle nach, fünf Versuchspersonen—elfjährige Mädchen—dargeboten, mit der Bitte, sie möchten den Grad der Güte oder der Boshaftigkeit der so dargestellten Personen abschätzen. Die Notierungen wurden nach einem neun-stufigen Massstab gemacht, wobei durch die Zahl 1 "eine ungemein gütige Person," durch 5 eine von "mittel-mässiger Güte," und durch 9 "eine schrecklich böse Person" angedeutet wurde.

Die Abschätzungen wurden ein Mal nach normalen Spiel bei Tageslicht gemacht, ein Mal nach zwei aufregenden "Mörderspiele" im Dunkeln, und dann nochmals den nächsten Tag nachdem normale Umstände bestanden hatten. Die Darbietungen wurden so geordnet, dass jede Photographie zweimal dargeboten wurde—ein Mal nach normalen Erfahrungen und ein Mal nach angsterzeugenden Erfahrungen.

Durch die durchschnittlichen Abschätzungen ist erwiesen worden, dass die photographierten Persönlichkeiten nach dem "Mörderspiel" für boshafter gehalten wurden, als früher oder später nach normalen Spiel. Es bestand eine durchschnittliche Erhöhung von ungefähr einem halben Punkt per Photographie per Versuchsperson. Da Beweis dafür bestand, dass die Kinder während des Mörderspieles Angst gefühlt hatten, hat man es als durch die experimentellen Befunde erwiesen betrachtet, dass die Angst zu einer Neigung der Versuchspersonen führt, andere Menschen als boshafter abzuschätzen, als sie es unter normalen Bedingungen tun würden. Es wird auch anderes, auf das Verhalten der Kinder gegründetes, Beweismaterial zur Unterstützung dieses Schlusses hervorgehoben. Das Phänomen wird als eine Offenbarung der Projektion klassiert und als solche vom theoretischen Standpunkt aus besprochen.

MURRAY

A RACIAL DIFFERENCE IN PERCEPTION*

From the Department of Psychology of Glasgow University

ROBERT H. THOULESS

The paintings of certain races (for example, the Persians, the Indians, the Chinese, and the Japanese) show characters which differentiate them from the main tradition of Western art. Since these races, although ethnologically very different, show a common feature in their art, we may speak of this as 'Oriental art.' Two marked features of Oriental art are the absence of shadows and the partial or total absence of perspective, i.e., circular objects inclined to the observer are drawn as very wide ellipses, parallel-sided objects with the sides receding from the observer are often represented as parallel on the picture, and objects of the same real size at different distances are drawn with very little difference of size.

Some of these characters may be noticed in Figure 1, which is an outline tracing of an illustration of an Indian book of about A.D. 1585 (1, Plate xxxiv). The circular mat on which the candle rests is represented by a figure much nearer to a circle than would be required by the laws of perspective. Parallel lines receding from the observer (such as the sides of the fountain) are drawn parallel and not convergent. In consequence they appear to Western eyes as somewhat divergent.

These features of Oriental art are often explained by the statement that its aim is symbolic and not representational. This may be part of truth, but it is difficult to see in what way this explains the drawing of parallel-sided objects in such a way that their sides appear not parallel but divergent. Nor does it explain the particular combination of departures from what is commonly regarded as representational drawing. A much simpler explanation is supported by laboratory experiment. There is a measurable difference in the perceptions of these races, and this difference is such that they see objects in a manner much further from the principles of perspective than do the majority of Europeans and also that they tend not to see shadows. The difference in question is in the extent to which

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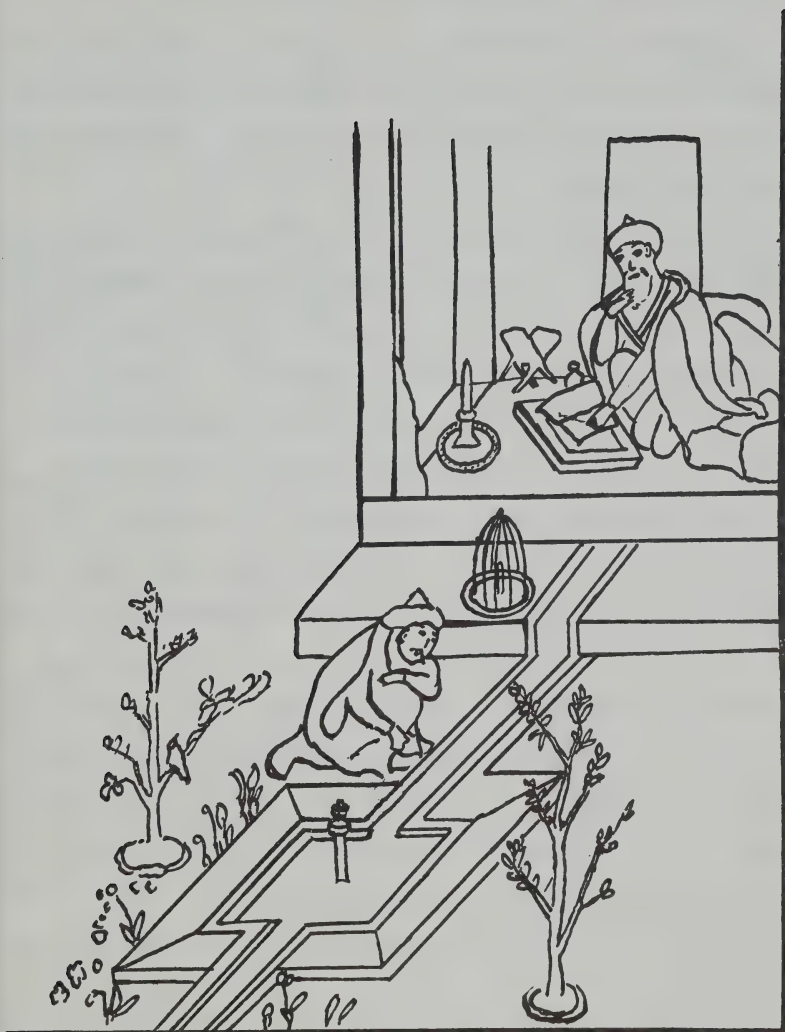


FIGURE 1

they are subject to what has been called 'the tendency to constancy' or the tendency to 'phenomenal regression to the real characters of objects.'

A number of experiments can be devised to show that in the perception of objects, every subject sees (i.e., immediately experiences) not the sensory characters indicated by peripheral stimulation but a compromise between these and the 'real' characters of the physical object itself, so far as there are perceptual cues to what these 'real' characters are (2, 3).

For example, a circular disc is placed on a table inclined at an angle to the subject's line of vision and we determine experimentally which of a series of ellipses of different axis-ratios appears to him to be of the same shape as the seen shape of the circle. He chooses not the disc which would be indicated by the laws of perspective (the one which gives him a retinal image of the same shape as that given by the circle) but one very much nearer than this to the actually circular shape. The seen shape is a compromise between the shape indicated by retinal stimulation and the 'real' shape.

Similarly, if two circular discs of different diameters are adjusted at such distances from the eyes that they are seen as equal, this is not when they give equal retinal images but when the retinal image of the actually larger disc is very much smaller than that of the other. Seen size is also a compromise between stimulus size and the 'real' sizes of the objects looked at.

Or, when a white paper dimly illuminated is compared with a gray paper more brightly illuminated, they are seen as equally white (or gray) not when the intensity of the light reflected from their surfaces is the same but when the gray is reflecting to the eye very much more light than the 'really' white.¹ Thus shadowing of the white paper has far less effect on the seen character than we should expect from the change in physical intensity; the seen whiteness is a compromise between the real whiteness of the object and the stimulus character of intensity of light received from it.

All of the above observations refer to perception with both eyes fully open so that perceptual cues to the real characters of the ob-

¹This observation is complicated by the fact that most subjects (about 80%) have two points of balance; one at which they see the papers as equally 'bright' but the really white as 'whiter' than the other, and one at which they see the papers as equally 'white' but the really gray as the 'brighter.' What I say here refers to the second point of balance.

jects concerned have full opportunity of action. The tendency is measurably diminished by diminution of these cues and disappears altogether if the conditions of observation are so arranged that they are absent (3).

The extent to which these effects take place in different individuals can be measured and is found to be subject to wide individual differences (4). All subjects show it to some extent, and the general tendency is for the phenomenal character to be considerably more determined by the 'real' character than by the 'stimulus' character. Some subjects, looking at a circle inclined at such an angle that its perspective shape is that of an ellipse with axis-ratio .365, see it as an ellipse of axis-ratio .45, while others see it as of axis-ratio .95 (hardly appreciably different from the circle). When a group of Indian students performed these experiments it was found that they showed a very considerably greater tendency for their perceptions to be determined by the 'real' characters of the objects perceived than did a control group of British students.

It has also been found that the individual differences in the tendency for perception to be determined by the 'real' characters of shape, of size, and of 'whiteness' are considerably intercorrelated. The individual who shows large phenomenal regression in one respect also tends to show it in others. The individual, for example, who sees receding parallel lines as nearly parallel also tends to see the 'real' whiteness of an object under varying illumination or shadowing.

The experiments used in the present investigation for the measurement of each subject's tendency to phenomenal regression to the 'real' object were (A) a measurement of the tendency to see the real shape of a circle inclined to the eye at such an angle that the perspective ellipse was one of axis-ratio .365, and (B) of the tendency to see the 'real' relative sizes of two circular discs. In the 'shape' experiment, the subject was given a series of ellipses of axis-ratios ranging from .25:1 to .95:1, which were observed normally to the line of vision, and the experimenter found by the limiting method which of these was matched in shape with the apparent shape of the inclined circle. In the 'size' experiment, two circles of different diameters supported at right angles to the table were similarly adjusted until their apparent sizes were equal.

In order to have a convenient measure of the tendency of each subject to see the 'real' character of the object, an 'index of phe-

TABLE 1

Group	N	Mean age	S.D. of age	Size test (A) Mean S.E.	Shape test (B) Mean S.E.	(A+B)/2 Mean S.E.
Indians	20	22.0	2.01	.76 .026	.86 .013	.81 .013
British	49	21.45	.96	.61 .023	.75 .018	.68 .019
Difference and its S.E. Difference/S.E. of difference				.15 4.3	.11 5.0	.13 5.65

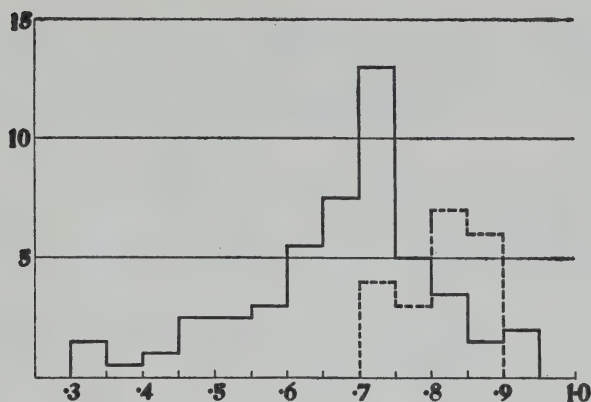


FIGURE 2

nomenal regression' was calculated which would have the value zero if there were no influence of the real character on perception while it would be unity if the influence were complete.² In all subjects so far investigated this index has been found to lie between zero and unity. Fuller details of the method of experimenting and of calculating this index are given in other papers (2, 3).

The subjects experimented with were all Indian students.³ It would have been interesting also to have had a group of Chinese or Japanese students, but only two or three of these were available. It is to be hoped that the experiments will be repeated on other racial groups by someone with better facilities for obtaining subjects of other races.

Figure 2 shows the distribution of the mean indices for Tests A and B for the group of 20 Indian students and for the control group of 49 British students. It will be seen that the Indians are grouped round a considerably higher value than the British students; the means being .81 and .68 respectively.

In order to test the significance of this difference, Table 1 gives the means and standard errors for both tests separately and for the

²The index used is $(\log. P - \log. S) / (\log. R - \log. S)$, where P stands for a numerical measure of the phenomenal or apparent character, S for a measure of the stimulus or perspective character, and R for the 'real' character of the object.

³11 Bengalis, 2 Sikhs, 2 Pathans, 1 Parsee, 1 each from Hyderabad, Nizam, and the Punjab, and 1 unknown.

TABLE 2
Median value of $(A+B)/2$ for the whole group=.4345

	Below median	Above median	
Indians	3	17	20
British	31.5	17.5	49
	34.5	34.5	

$$X^2=13.8$$

Probability of this value of X^2 occurring by the chances of sampling=.0002.

mean of the two. It will be seen that all differences are significant, the least ratio of difference to standard error of difference exceeding 2.5.

As an additional test for the significance of this difference we may use a criterion which does not assume approximately normal distribution of the quantities measured, by forming a fourfold table about the median of the group as a whole. This has been done for the mean of the two tests in Table 2. A value of X^2 is obtained which would not occur by the chances of sampling from identical populations more than once in 5000 times. This confirms the conclusion that there is a real quantitative difference in perception between the Indian and British students.

We are, therefore, led to the conclusion that there is a real racial difference in perception between the British and Indians and that this difference is exactly the difference which would lead to the observed differences in drawing technique between Western and Oriental artists. It seems highly probable that the difference in drawing technique is a result of the difference in perception.

There is a final very difficult problem in Oriental art to which I cannot offer more than a guess at the solution. While parallel-sided objects receding from the observer are commonly drawn as parallel on the picture, they are occasionally drawn as divergent. While a strong tendency to perceive things in their 'real' characters is sufficient explanation of why an object producing a convergent retinal image should produce a parallel-sided perception, it is not easy to see any reason why it should ever produce a perception of divergence. There is, however, one way in which a similar effect can be produced experimentally which may provide the clue to the solution of this puzzle. If we look with binoculars or a telescope of sufficient magnification at a parallel-sided wall receding from us, we see the sides

as divergent (3). Although the retinal image is convergent, phenomenal regression has taken place from this to the fictitious 'real' object which at the nearer apparent distance to which the telescope has caused the object to be referred would give a retinal image with the same degree of convergence.

Is there any way in which the same effect could be produced by the projection of a seen object onto the plane of the picture? Not certainly for the normal person. If we hold a piece of cardboard with a circular hole cut in it between ourselves and the wall and parallel to the plane of the wall, we can succeed in seeing the wall in the plane of the cardboard. The effect, however, is not analogous to the change of apparent position with the telescope since there is no magnification and the apparent slight convergence or approximate parallelism remains as before. If, on the other hand, the cardboard is brought at right angles to the line of vision in order to make the conditions closer to those of painting a picture, the apparent convergence is noticeably increased.

There is, however, probably an important difference between the conditions of this experiment and the manner of drawing of an Oriental artist. From the meditation practices of Oriental races, it seems probable that they are strongly eidetic. An eidetic projecting a seen object on the plane of his drawing material and with strong phenomenal regression for size will, in effect, be magnifying as well as bringing the eidetic image nearer to himself than is the 'real' object. The total process, therefore, will be very closely analogous to the condition of looking through a telescope and may produce the same effect of phenomenal divergence.

This is a highly speculative explanation resting on no experimental evidence and I attach no importance to it. It is given only in the hope that others may be stimulated to find a more adequate explanation.

SUMMARY

1. A group of Indian students show a significantly greater tendency to 'phenomenal regression to the real object' than a control group of British students.
2. This suggests that the absence of perspective and of shadows in Oriental art is determined by a real racial difference in perception and not merely by a tradition of 'symbolic' representation.
3. The occasional occurrence of 'divergent perspective' in Ori-

ental art is not explicable in the same way, and only a speculative suggestion is offered.

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Glasgow University
Glasgow, Scotland

UNE DIFFÉRENCE DE PERCEPTION SELON LA RACE

(Résumé)

Cet article essaie d'expliquer deux caractéristiques de l'art oriental: l'absence partielle ou complète de la perspective et l'absence des ombres. Chez chaque personne il se montre une certaine tendance à rendre égale son expérience immédiate des formes et des grandeurs aux formes et aux grandeurs "réelles" des objets vues, de sorte que les formes et les grandeurs vues sont en partie indépendantes des variations de la direction de la vision et de la distance de l'objet respectivement. De la même manière le degré du blanc perçu est en partie indépendant de la lumière de l'objet. Une intercorrélation se montre entre les tendances à une régression phénoménale au caractère "réel" à ces égards, de sorte que l'individu qui voit les objets inclinés en approximativement leurs formes réelles tend aussi à voir les objets lointains en leurs grandeurs réelles et les objets ombrés avec leur blanc réel (c'est-à-dire, comme à peu près sans ombres).

Ces caractères de l'art oriental pourraient donc s'expliquer si les races qui le produisent avaient une grande tendance générale à la régression phénoménale aux caractères réels des objets. Un groupe d'étudiants indiens a montré une tendance moyenne beaucoup plus grande que celle d'un groupe de contrôle composé d'étudiants anglais. On suggère que cette différence de perception selon la race est l'explication principale de l'absence de la perspective et des ombres dans l'art oriental.

THOULESS

EIN RASSENUNTERSCHIED IN BEZUG AUF WAHRNEHMUNG

(Referat)

Es wird hier der Versuch gemacht, zwei Eigenschaften der morgenländischen Kunst,—partielle Abwesenheit der Perspektive und Abwesenheit der Schatten,—zu erklären. Es zeigt sich, dass jeder Mensch in einer gewissen Stärke die Neigung erweist, seine unmittelbare Empfindung der Formen und Grössen den 'wirklichen' ['real'] Formen und Grössen der gesehenen Gegenstände anzunähern [approximate]. Die empfundenen [experienced] Formen und Grössen sind also von Abweichungen in der Gesichtsrichtung [direction of vision] und in der Entfernung der Gegenstandes, respektiv, zum Teil unabhängig. Ähnlich ist der empfundene Grad der Weissheit von der Beleuchtung des Gegenstandes zum Teil unabhängig. Die Neigungen in die Richtung des Rückkehrs [regression] des Phänomens zur 'wirklichen' Beschaffenheit ['real' character] [des Gegenstandes] in diesen Beziehungen erweisen sich als unter eine ander korreliert. Ein Mensch, also, der schräg gerichtete Gegenstände approximativ in ihren wirklichen Formen sieht, neigt auch dazu, fernliegende Gegenstände in ihren wirklichen Grössen und beschattete Gegenstände in ihrer wirklichen Weisse (d.h., als fast unbeschattet) zu sehen.

Die oben erwähnten Eigenschaften der morgenländischen Kunst würden also erklärt sein, wenn die sie schaffenden Rassen im Allgemeinen eine stark ausgeprägte Neigung dazu, hatten, zu den wirklichen Eigenschaften der Gegenstände zurückzukehren. Eine Studentengruppe aus Indien erwies eine viel höhere durchschnittliche Tendenz in dieser Richtung als von einer Kontrollgruppe bestehend aus britischen Studenten erwiesen wurde. Es wird darauf hingewiesen, dass dieser Rassenunterschied in Bezug auf die Wahrnehmung vielleicht die Haupterklärung des Mangels an Perspektive und an Schattierung in der morgenländischen Kunst darstellt.

THOULESS

THE PSYCHOLOGY OF ADHERENCE TO THE OLD AND OF ACCEPTANCE OF THE NEW*

From the Department of Psychology, Louisiana State University

CHARLES HOMER BEAN

This is a preliminary effort to investigate the manner in which opinions are formed by people in general about the problems of the day.

In all social and moral matters and in the affairs of any democracy or near-democracy, what the people believe is of paramount importance. In private as well as in public affairs, opinions are the most potent determiners of success or failure. Investments, loans, the launching of new enterprises, the adoption of new policies, or the perpetuation of old programs are all governed by opinions. Who will become believers in the new idea and who will be opponents can often be anticipated on the basis of their habitual attitudes towards the familiar and the novel in the given field.

There are families, institutions of many kinds, communities, and entire nations that resist all inducements to advance, and there are other corresponding units that are ever ready to plunge into any untried scheme. But also those whose faith is confined to things that came to light long ago are so commonly residents of the same community, members of one church, partners in business, or relatives in a single household that the solution of this problem looks difficult.

An additional complication shows itself in the observation that a nation or an individual is sometimes progressive or even radical in some matters and conservative or decidedly static in others. For example, the United States of America, which prides itself in being much more up-to-date, especially in industrial and commercial matters, than her European and Central and South American competitors, and familiar, as most of them are not, with a decimal monetary system, has resisted decades of effort on the part of the government and the schools to introduce the now almost universal metric

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system of weights and measures. There are numerous illustrations of this sort the world over.

The time is ripe for investigation of the conditions that contribute to progress and the circumstances under which opinions become static. Through the World War and the depression there has come about such extreme lack of confidence on the part of some in things as they have been that they would do away with all moral standards, private property, religion, marriage ties; and they would destroy every tradition that has been inherited from the past and start civilization anew. This has set another large number into militant opposition to modernism in most of its outstanding forms.

There could be no better locality on this continent just now for the starting of this investigation than Louisiana, because of its unprecedented rate of departure from the out-of-date into modern and ultra-modern thought and action, and the more-stubborn-than-ever adherence of a rapidly dwindling remnant to the traditional habits of the "good old days." There is only here and there a lingering case of the type that Northerners suppose to be universal in the South. In one locality, in a magnificent colonial mansion, live three sisters, elderly ladies, who are threadbare and gaunt in their poverty. They know that their whole neighborhood is aware of their penury, and, although it is known beyond question that false pride is not what keeps them there, their unwillingness to live anywhere else than in their girlhood home or to have it changed in the least has made them refuse a standing offer of half a million dollars for it, and has made them decline to sell to the federal government, for thirty-five thousand dollars, one piece of furniture, a screen that is known to have been painted by Martha Washington.

Explanations offered for willingness or unwillingness to progress have been inadequate and even contradictory. Nations that twenty years ago were described by historians as naturally unprogressive, inherently unintelligent, ignorant, and inheriting none of the fighting instinct and therefore bound hand and foot by tradition are today rebellious, scornful of the old, and assimilating the new as rapidly as they can. Stoddard, in his "Revolt against Civilization" (5), furnishes large quantities of proofs that radicalism is due to low intelligence and ignorance. Charles T. Kelley (3) says that radicals are "ambitious but handicapped by limited mentality." Stewart Paton, in "The Psychology of the Radical" (4), and James M. Beck, in "Report of U. S. Solicitor General" (1), both insist that

radicals revolt to compensate for their inability. But Dr. Thomas H. Howells, of the University of Colorado, in a study of religious orthodoxy, found radicals superior to the opposite group in motor skill, memory, following directions, and slightly superior in intelligence.

The plan of this preliminary study is to find the degrees of these attitudes of as large a variety of people as possible to a list of fifty current issues and departures from traditions and customs. Opposite each of these items they are instructed to place a check in one of five columns that are headed, respectively, "I believe in," "I am somewhat inclined to accept," "I am undecided," "I am inclined to reject," "I do not believe in." In a space at the right of these columns the reagent is requested to draw a ring around "No" if he does not remember ever having changed his mind about the item, or around "Yes" if he does, and to add the causes of the change if he can recall them.

Examples of these issues are "Capital punishment for first-degree murder," "Women smoking in public places," "Men in theatres and hotel dining rooms without coats," "Divorce made easier," "A single set of moral standards for men and women," "Political appointments to friends of the winning candidate as opposed to civil service examination."

The blanks were filled out by 50 pupils of a village and rural high school in a very barren hill country, by 50 in the high school of a village and rural community that produces millions of dollars worth of strawberries and large truck-garden crops each year, and by 100 normal-college students, and by 450 undergraduate and graduate university students, and by 300 parents of university students. All but the parents worked under sufficient supervision to prevent discussion of the topics, and these parents were requested to send the material back before discussing any of the items. The high-school pupils were supervised by two graduate students, Miss Gertrude Fridge and Miss Ena Burns, and the others by the writer, and the scoring was done by the three of us.

Interest in the task was sharpened by the promise that the paper would be returned, bearing the percentile rank, so that each individual would know something new about himself in comparison with the others.

In order to convince the subject that no one else was interested in his individual opinions, and thus to avoid conscious or unconscious

inclination to give answers that would be approved of by the investigator, each one was requested to sign, in place of his own name, that of his maternal grandfather or of her maternal grandmother. Thus each could later identify his paper without his own name on it.

Inquiries after the papers had been collected made it evident that every one mistakenly supposed the purpose to be to get a consensus of popular opinion on each of these questions of the day. This means that the real problem contributed no bias to the answers, also that each question was treated as an isolated one. This is, therefore, a test, not a questionnaire. Here is a summary of the technique employed in this research.

1. The subjects were required not to sign the papers with their own names.

2. As large a number of items were used in the test as could be selected from a much longer list by trying it out on classes that had no part in the later research.

3. Objectivity beyond the reach of the judgments of scorers.

4. The greatest possible diversity of fields from which the items were chosen.

5. Issues and their forms of statement within the understanding of all.

6. No interdependence of items.

7. Psychological halo reduced to its minimum.

8. Every one of the fifty items fitted the five degrees of belief, which the university students agreed were five as equal degrees as they could estimate.

9. Shunning of unfamiliar, dead, and provincial material.

10. One column in the series, the third, was provided in which to express a neutral or an undecided state of mind, to avoid the forcing of answers.

11. Reagents from representative groups who could be investigated, both in large groups and individually, and could be retested for determining reliability of the test.

Additional information put on the papers made possible the classification of the subjects as to sexes, several age levels, kinds of work they had done, the occupations of their fathers and grandfathers, the religious denominations in which they had been reared, and whether they had lived on farms and plantations, in villages of less than a thousand, in cities of less than fifty thousand, or in larger cities, in the East, Middle West, Pacific West, or South.

The scoring was done by means of two cut-out, stencil-like keys, one for the statements that favored the new and another for the statements that were put in the opposite form to counteract halo. The scoring, tabulating, and calculating were checked for accuracy at four stages. The five columns in the tables are made of the medians of the totals of the check marks which the reagents placed under the five captions: "I do not believe in," "I am inclined to reject," "I am undecided," "I am inclined to accept," "I believe in."

According to the data in Table 1, these university students are more and more willing to accept new ideas and new points of view the more undergraduate and graduate education they have acquired. The summer-session students are much more conservative than those of the regular session. Their average age is considerably beyond that of the regular-session students; therefore they probably had held the old points of view longer and had become much more thoroughly habituated to them than the younger students of the long session. There were too few men in the normal-college group to make comparisons with them worth while. The normal-college women students averaged much more conservative than the university women, but more progressive than the summer-session women. The requirements for entrance into the Louisiana Normal College are the same as for entrance into the university, but there is considerable differ-

TABLE 1
EDUCATION

	Con- servative	Somewhat con- servative	Un- decided	Somewhat pro- gressive	Pro- gressive
Sophomore men	10.2±2.2	5.1±1.2	7.5±2.2	9.5±2.7	20.5±3.6
Junior men	8.9±2.0	5.5±2.0	6.3±2.8	8.5±2.1	19.3±5.0
Senior men	9.9±1.7	5.3±1.5	5.9±1.2	8.5±4.5	21.5±3.5
Graduate men	8.5±1.2	5.2±1.4	6.8±2.0	8.3±2.6	21.0±2.1
Sophomore women	8.3±1.7	9.3±1.3	9.5±2.2	9.5±2.9	18.5±3.2
Junior women	9.7±2.1	3.4±1.9	5.1±1.8	7.7±2.5	20.8±2.3
Senior women	7.3±2.3	5.5±1.3	6.5±2.4	9.5±2.3	19.3±3.3
Graduate women	7.2±1.7	4.9±.9	6.1±2.4	9.6±2.3	21.6±3.3
Summer men	12.0±3.5	7.0±3.0	5.3±1.2	11.0±5.3	11.0±2.7
Summer women	15.0±3.5	7.1±1.3	4.5±1.2	6.0±2.0	17.5±3.0
Normal-college women	19.2±2.0		8.1±1.8		23.7±3.2

TABLE 2
EDUCATION OF PARENTS OF UNIVERSITY STUDENTS

	Con- servative	Somewhat con- servative	Un- decided	Somewhat pro- gressive	Pro- gressive
Finished elementary					
Men	16.0±2.5	6.5±2.0	9.4±3.1	4.2±.9	13.5±1.3
Women	13.3±2.0	6.1±1.7	9.3±2.2	4.3±1.8	14.8±2.9
High-school graduates					
Men	17.5±3.2	5.3±2.2	3.2±1.2	2.7±1.5	15.5±3.1
Women	13.8±3.5	7.5±2.8	3.6±1.1	7.4±2.4	15.5±2.8
One year in college					
Men	16.0±1.0	6.0±1.0	3.5±1.1	7.5±2.0	14.5±2.2
Women	15.3±1.3	5.5±2.3	3.5±2.3	4.7±.8	17.0±1.5
Two years in college					
Men	16.5±4.5	9.0±1.2	4.3±.8	6.0±.9	17.5±2.1
Women	15.0±3.0	5.0±.1	6.5±3.5	5.0±.7	17.0±3.5
Three years in college					
Men	14.0±5.5	4.5±3.7	6.0±2.5	4.0±3.8	14.0±5.0
Women	14.5±1.5	9.5±2.0	5.5±1.4	5.3±2.5	16.0±3.1
Four years in college					
Men	14.0±5.0	7.5±4.0	5.0±2.5	4.0±3.0	13.0±2.2
Women	8.0±1.2	4.0±1.0	8.0±1.3	12.0±2.0	18.0±2.5
In graduate school					
Men	18.5±4.5	4.5±2.2	4.0±2.8	4.0±3.5	14.0±1.7
Women	14.0±3.0	4.5±1.2	4.5±1.5	3.75±.8	18.0±2.5

ence in the two types of education. Besides, the traditional atmosphere of a training school for elementary teachers is necessarily dominant in the normal college, whereas in the university there is the spirit of the professional schools and that characteristic insistence upon independent research and freedom of thought and teaching that make it easier to abandon the old and accept the new.

Although there is much more conservatism in the attitudes of the parents of these university students, there is also evident in Table 2 a gradual increase in willingness to accept the new attitudes from level to level in their educational status.

The correlation between the attitudes of students and the years of schooling of their parents is low (+.19). Possibly, among the factors that make it low are the influence of both the progressive

TABLE 3
ENVIRONMENT DURING CHILDHOOD AND YOUTH

	Conservative	Undecided	Progressive
University men			
From farm and plantation	25.5±3.3	6.5±1.4	21.0±3.0
From village under 1000	24.0±5.7	4.6±1.4	22.0±1.5
From town under 5000	19.3±2.0	4.8±2.1	21.4±2.2
From city under 50000	19.0±1.2	5.0±1.9	24.0±2.5
University women			
From farm and plantation	15.9±2.5	7.8±2.0	23.0±2.1
From village under 1000	19.5±3.7	8.0±2.2	25.7±3.0
From town under 5000	21.5±3.6	6.7±3.1	22.0±3.0
From city under 50000	22.0±2.5	7.0±2.3	24.0±2.5
Normal-college women			
From farm and plantation	18.7±2.2	7.7±2.5	26.5±2.8
From village under 1000	18.3±3.2	9.0±3.0	23.3±2.5
From town under 5000	21.2±3.4	6.5±2.6	24.8±3.0
From city under 50000	18.5±2.3	8.8±4.5	20.3±1.7

rearing of the educated home and the opposition to opinions and doings of the rising generation usually observable in the uneducated home.

Table 3 contains consistent evidences that, contrary to popular opinion but harmonious with recent sociological research, indicate that there is more open-mindedness in persons who were reared in large towns than among those who were reared in cities, and that there is more relish for the new among those from villages than among those from large towns. Also this table indicates that students reared on the farms and plantations are the least conservative of all. These same indications are even more consistently present in the reactions of the normal-college students.

Another influence that would surely increase or decrease the satisfaction of young people with things as they found them in this world is the father's occupation. In the order of greater and greater willingness to depart from the old and accept the new were the sons and daughters of editors, managers of mills, brokers and realtors, planters and stockmen, tradesmen, railroad employees, lawyers, book-keepers and farmers, physicians and dentists, contractors, city and county appointees, and professors.

Table 4 shows that there was a slight advantage in progressiveness of normal-college students who were under twenty years of age,

TABLE 4
AGES

	Con- servative	Somewhat con- servative	Un- decided	Somewhat pro- gressive	Pro- gressive
Fathers of students					
Under forty	16.3±1.7	3.3±.9	4.3±2.1	4.8±1.4	16.3±.9
Forty or more	15.5±1.5	4.4±1.2	3.0±1.0	3.2±1.3	13.1±.9
Mothers of students					
Under forty	13.0±1.1	6.0±1.6	4.5±1.7	5.5±.7	15.0±2.2
Forty or more	10.1±1.0	4.4±1.6	3.3±.8	5.0±1.7	9.4±1.8
Normal-college students					
Under twenty	19.4±3.5		7.4±2.5		25.7±2.8
Twenty or more	19.0±2.8		8.5±3.5		26.0±1.5

but there was no consistent difference of this kind between university students under and over twenty. The fathers and the mothers of university students who were under forty averaged considerably greater in willingness to accept the new than those over forty.

According to Table 5, variation from conservatism to progressivism among students reared in the three great religious groups is in the following order: *Men*, Jewish, Catholic, Protestant; *women*, Catholic, Jewish, Protestant; *both sexes*, Jewish, Catholic, Protestant. Only one question was on a religious subject. Several of the other forty-nine had moral implications.

TABLE 5
RELIGIOUS REARING OF PARENTS OF UNIVERSITY STUDENTS

	Con- servative	Somewhat con- servative	Un- decided	Somewhat pro- gressive	Pro- gressive
Jewish men	20.0±2.5	4.5±1.0	6.0±2.0	3.0±.3	16.3±1.0
Jewish women	19.0±2.0	5.0±1.2	4.0±1.3	2.0±2.0	20.0±3.0
Both	19.5±2.5	4.5±2.0	6.0±2.6	3.0±.5	15.1±4.0
Catholic men	17.2±3.0	5.8±3.1	4.1±1.0	4.8±2.2	13.5±2.5
Catholic women	14.0±4.0	5.0±2.7	5.5±2.5	4.3±1.8	14.7±3.8
Both	16.3±3.8	5.4±2.6	4.7±1.3	5.5±4.0	14.8±2.8
Protestant men	17.0±4.8	8.0±3.8	4.0±2.6	3.9±1.8	15.1±3.2
Protestant women	14.3±2.7	4.8±1.6	5.0±2.8	4.4±1.7	16.0±1.4
Both	15.3±3.6	4.9±2.4	4.7±2.7	4.2±1.8	15.8±3.0

Two hundred ten university students were given the Colgate University personality test and the Downey will-temperament test. All university students had been given the Thurstone freshmen tests. The correlation coefficient of scores in introversion and scores in progressiveness, which were found in a way very similar to that of finding scores in introversion, was only .16 with $\pm .058$ P.E. The correlation between these degrees of progressiveness and intelligence was .06 with $\pm .066$ P.E. No hint of relationship of any kind could be found between openness to new opinions and any of the functions of will-temperament.

Nothing of value was found through the study of the so-called "open-mindedness" of the high-school pupils except that it was somewhat greater in girls than in boys, and the boys and girls of the farms in the very prosperous region were more satisfied with things as they have been than were the high-school students of the other section. But the boys and girls living in the village of the prosperous section were more progressive than their schoolmates from the farms and more than those of the other town.

In relatively few cases did the reagents write "Yes," indicating that they remembered ever having changed their minds about the various issues, or "No," signifying that they believed they had not. When they were questioned, they said they could not be sure in most cases.

There were 249 recorded recollections of changes to the new views for 142 of which reasons were given. Of these explanations, 39 were either college instruction or reading; 17, thinking; 17, experience and observation; 2, arguments presented by someone else; and 26, becoming accustomed to the new views and ways of doing in these times.

Changes to more conservative views were indicated in 141 cases with 94 reasons. College instruction and reading constituted 27 of these explanations; thinking, 14; experience, 17.

Remembering changes to a condition of indecision were recorded 23 times with no one explanation more than twice. In all cases of the changes to the progressive and to the conservative views, only one reason for each change was given, and that was very often an astonishingly trivial one. A single political appointment turned the person from belief in civil service examinations to staunch defense of the spoils system or *vice versa*. There were similar cases with

reference to capital punishment, married women and careers, divorce, single moral standard, doing away with intercollegiate athletics.

In every table of results thus far presented, the women are conspicuously more ready to accept new points of view than the men. The women of Louisiana State University are a smaller, more select group than the men, always make considerably higher average scores in freshmen intelligence tests, and better marks and more quality points. But this supplies little, if any, explanation for these pronounced differences in attitude, because this difference is even more obvious between their fathers and mothers. The popular supposition is that women are more conservative than men. Perhaps they were before they made their recent gains in equality of opportunity.

Another comparison of attitudes of men and women is made in Table 6, concerning five privileges for women and one for men that have been put into practice by many under protest of many others in recent years. Of the men, one-half favored the five new privileges for women and one-third believed in the one privilege for men. Of the women, almost 70% favored the five privileges for women, and only 7% assented to men's making this one change in style of dress for hot weather.

These results predict, rather than justify, the following conclusions:

1. The more schooling these young, middle-aged, and old people have had, the more readily they adopt new points of view.
2. The younger or the more inexperienced any of the regents are, the more able they are to accept new ideas and practices.
3. The evidence in this research indicates that there is a gradual

TABLE 6
NEW PRIVILEGES APPROVED

	By men	By women
Privileges for women		
Smoking in public	50%	40%
One moral code for both	50%	73%
Careers for married women	43%	65%
Political offices	29%	75%
Same pay as men	76%	93%
Averages	50%	69%
Privilege for men		
Coats off in public	33%	7%

increase in conservatism from the farm through the village, the large town, and the small city to the largest city in the state. Perhaps popular opinion has found justification in former years for its opinion that the less populous the locality the more influence tradition has upon its people, but the opposite seems to have been true when these data were collected.

4. To some extent open-mindedness of the young people of similar communities were influenced by the occupations of their parents.

5. Young men reared in Jewish families were most conservative; those reared in Protestant families were most progressive. Young women reared in Catholic families were most conservative, and those reared in Protestant families were most progressive in the various issues.

6. In this investigation a large percentage of the older people and a fairly large percentage of the younger people accept new ideas in a few fields, and reject them in most fields.

7. A few of the older and very few of the younger group adhere to traditions of almost all kinds. A large number of the young people and a smaller number of the others accept the new views on almost all of the items.

8. High-school pupils in the village of a very prosperous farming section and on the farms of a very unproductive farming section were the classes more dissatisfied than the other residents with things as they have been and more insistent on changes. In both cases, the more successful is correspondingly the more happy of the two groups in one neighborhood.

9. Mothers are found to be much less willing to favor new views and new ways of doing things than their children, and the fathers were very much less favorable to these departures from traditions.

10. Men average higher in conservatism than women, but women are much more conservative than men in matters pertaining to men.

11. It is undoubtedly evident in this research that traditional views and time-worn modes of behavior are adhered to with little and with no reason for doing so, and that most changes to new views are made with insufficient justification.

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*Louisiana State University
Baton Rouge, Louisiana*

LA PSYCHOLOGIE DE L'ADHÉRENCE AU VIEUX ET DE L'ACCEPTATION DU NOUVEAU

(Résumé)

Six cent cinquante étudiants et trois cent cinquante de leurs parents ont indiqué leurs croyances, leurs inclinations à accepter, leurs indécisions, leurs inclinations à douter, ou leurs incroyances pour chacun de cinquante écarts actuels de la tradition. Les médianes des résultats ont montré augmentations, graduelles mais définies, des écarts des attitudes traditionnelles et des acceptations des nouvelles et des inclinations pour celles-ci dans chacune des séries suivantes: étudiants de la "high school", étudiants du "collège" de première année, de deuxième année, de troisième année, et de quatrième année, étudiants universitaires; les séniles, les personnes d'âge mûr, celles qui n'ont pas atteint l'âge mûr, celles âgées de vingt et quelque chose; les juifs, les catholiques, les protestants; les hommes, les femmes; les communes prospères, les communes non prospères; et chose étrange, les grandes villes, les petites villes, les grands villages, les petits villages, les plantations, les fermes. Les explications des changements dont ils ont su se souvenir ont été ordinairement des incidents uniques et des raisons très triviales ou l'habitude de s'accoutumer aux innovations faites par d'autres.

BEAN

DIE PSYCHOLOGIE DES FESTHALTENS AN DAS ALTE UND DER ANNAHME DES NEUEN

(Referat)

Sechs Hundert und fünfzig Studenten und drei Hundert ihrer Eltern gaben Bescheid über ihre Überzeugungen, ihre Neigungen zur Annahme [inclinations to accept], ihre Unentschlossenheiten, ihre Neigungen zum Zweifel, oder ihre Unglaube, in Bezug auf fünfzig verschiedene moderne [current] Abweichungen von der Tradition. Die durchschnittlichen Befunde zeigten allmähliche aber bestimmte Zunahmen in der Zahl der Abweichungen von traditionellen Stellungnahmen, und der Annahme des Neuen und Neigung dazu, in jeder der folgende Serien: höhere Schüler [high school], "Füchse" [freshmen] an Universitäten, Schüler der zweiten Universitätsklasse, Schüler der dritten Klasse, Schüler der vierten (obersten) Klasse, Graduierte; Senile, Leute von mittlerem Alter, Leute in vor-

mittlerem Alter [pre-middle-age], Leute in den Zwanzigerjahren; Juden, Katholiken, Protestanten; Männer, Frauen; wohlhabende Gemeinden, und, überraschenderweise, Grossstädte, Kleinstädte, grössere Städtchen [large towns], kleinere Städtchen [small towns], Plantagen [plantations], Bauernhöfe. Versuchten die Versuchspersonen die Meinungsänderungen, an die sie sich erinnern konnten, zu erklären, so gaben sie gewöhnlich einzelne Vorfälle und sehr oberflächliche Gründe an, oder eine allmähliche Angewöhnung an die durch Andere eingeführten Neuerungen.

BEAN

SHORT ARTICLES AND NOTES

ADJUSTMENTS OF SUPERIOR AND INFERIOR SCHOOL CHILDREN

SAM. R. LAYCOCK

There has been a rapidly growing conviction on the part of leaders in mental hygiene that success in the future depends on the adoption of two points of view:

1. Mental hygiene must increasingly place its emphasis on the positive side of the development of healthy, wholesome living.
2. In order to accomplish the aim referred to above, mental hygiene must become a potent factor in school life—in determining types of curricula, methods of organization, classroom administration, vocational guidance, and in the diagnosis of pupils' difficulties.

Many indictments have been made of the traditional system of education and its effects in producing personality and behavior maladjustments. From time to time there have appeared case studies of children whose maladjustments have brought them to the attention of child guidance clinics. In not a few of these case studies the blame for the difficulty has been laid at the door of the traditional school system. Leaders in educational thought have, on the basis of educational philosophy, pointed out grave dangers and basic faults in our current system. To date, however, there have been made few studies of an objective nature, to determine the general trends of the effects of our educational system on an unselected group of inferior as compared with an unselected group of superior school children. The present study aims at making such a comparison.

ORGANIZATION AND PROCEDURE

The study reported in this paper has been carried out by the writer in the city of Saskatoon, Saskatchewan. The city, which has a population of 45,000, is located in the heart of an agricultural province. It boasts a school system which, in the quality of its leadership, and in the attitude and training of its teachers, is decidedly above the average. The study, which has covered a period of three years, was carried out in one school, located in a district of social status somewhat above that of the average for the city as a whole. The school has a pupil population of approximately 600, with 16 teachers in charge. During the past three years the writer has spent approximately half his time in this school making a study of the personality and behavior maladjustments of all the children of the school.

Two groups of children were selected for purposes of this study. The first group consisted of 51 children with IQ of 110 or over and the second group consisted of 51 children below 90 in IQ. In no case has a child been

included where the IQ on two or three group tests or on an individual Stanford-Binet was outside the above limits. The results of the tests have been carefully checked by other data, since the writer has on file case records of all the children. These case records, containing material gathered during three years, contain medical, school, and developmental histories, from four to twelve standard educational tests, records of interviews with teachers, rating scales by teachers as described later in the paper, interviews with parents, rating scales by parents, and interviews with pupils. Furthermore, all of the 102 children referred to in this study are personally known to the investigator and he has had them under observation for a period of from two to three years. The writer has also personally interviewed at least one parent of each of the 102 children studied. From all the unusual amount of data available the writer feels that the classification into intellectually "superior" and intellectually "inferior" children has been well safeguarded.

The group of superior children has an IQ range from 110 to 141 with the median at 121.17. The group of inferior children has an IQ range from 89 to 52, the median being 78.83. It will thus be seen that the median IQ of the superior group is as much above 110 (the usual classification line for superior pupils) as the median IQ of the inferior group is below 90 (the usual lower limit of children classed as average). In chronological age the superior group ranges from 7 years 5 months to 14 years 6 months with the median at 12 years $1\frac{1}{4}$ months. The inferior group has a range in chronological age from 7 years 5 months to 16 years, the median being 12 years $10\frac{1}{4}$ months. The median chronological ages of the two groups correspond quite closely, but the upper age limit of the inferior group is higher than that of the superior group since the latter passes out of the elementary school at an earlier age. From the above data it will be seen that the two groups are comparable so far as IQ and CA are concerned.

The object of the investigation was to compare the kind and degree of personality and behavior maladjustments of the above two groups. This was carried out by means of a rating scale of 102 personality and behavior maladjustments. This list of traits was chosen from the results of a questionnaire in which 168 teachers of the Saskatoon school system were asked to list those forms of behavior which they considered undesirable in school children and forms part of another study not yet published. The idea of the scale, together with the method of marking, was borrowed from Wickman's investigation reported in "Children's Behavior and Teacher's Attitudes." A sample portion of the rating scale is given below.

Each teacher in the school was asked to mark one of these rating scales for each pupil in his or her room once during each school year. The instructions *re* marking were, in part, as follows:

"Will you please indicate your judgments by placing a check mark like this \checkmark on each line according to the caption at the

top. You may place your check \checkmark at any point on the line. You need not make it at any of the divisional points. If you think your rating falls somewhere between two divisional points you may make your check at the approximate point just where you think it ought to go. This will permit you to make finer ratings."

REPORT OF TEACHER ON INDIVIDUAL PUPIL

Name of Pupil _____ Age of Pupil _____

Grade _____ Name of teacher making return _____

Personality or Behavior Maladjustment	Degree to which present in this pupil:			
	Not known in this pupil	Slight tendency noted	Fairly strong tendency noted	Very strong tendency noted
Stealing -----		\checkmark		
Lying -----			\checkmark	
Sulkiness -----	\checkmark			
Desire to show off -				\checkmark
Shyness -----	\checkmark			
and				
97 other traits				

The section of the scale reproduced above has been marked for illustrative purposes—for example, lying is marked between "slight tendency noted" and "fairly strong tendency noted."

The scale is scored in an objective manner. The lines are drawn in such a way that a ruler placed over the scale enables it to be marked on a scale of 20 units, each one-eighth of an inch in length. "Very strong tendency" is thus scored; "fairly strong tendency" is scored 12; "slight tendency" is scored 4; and similarly with gradings in between these divisions. The results being expressed in objective units were thus capable of treatment statistically.

Ratings on each pupil in the school are now on file covering a period of three years, the first two ratings being used in the statistical part of this investigation. It should be noted that each teacher rated *all* the pupils of his or her room and was unaware that any special study was being made of the superior and inferior groups. It was felt that this provision would avoid any tendency on the part of the teachers to exaggerate the maladjustments of the inferior group or to minimize those of the superior group.

Since each of the 102 children studied was rated by the two teachers during the two academic years, the average of the two ratings was taken as the score of any pupil on each trait. It was felt that while the ratings obtained were often much reduced by this method, the results would lessen the effect of any bias in judgment on the part of the teachers.

The mean rating for each of the 102 traits was calculated for each group, and the standard deviations and probable errors were obtained. The next step consisted in finding out whether the difference between the superior and inferior group in the average rating of any trait was a reliable difference or one that might occur by chance only. For example, the mean rating for bullying was 1.147 for the inferior group and .637 for the superior group. Is that difference a reliable difference, or is it due to chance factors? To determine the above point use was made of the following formulae:

The coefficient of reliability = $\frac{D}{P.E._D}$, where D = the difference in the mean ratings of any two traits.

$$\text{The } P.E._D = \sqrt{\frac{(P.E._{dis A})^2}{N_A} + \frac{(P.E._{dis B})^2}{N_B}}$$

where $P.E._{dis A}$ = the P.E. of the rating of any maladjustment for the inferior group, and $P.E._{dis B}$ = the P.E. of the rating of the same maladjustment for the superior group, and N = the number of cases.

In calculating the reliability of the difference, a significant difference was interpreted when the coefficient of reliability was 4. This is to be interpreted as meaning that, if the experiment were repeated, there are at least 99 chances out of 100 of obtaining a difference in the same direction. A coefficient of reliability of 3 to 4 may be interpreted as being highly suggestive of significance.

RESULTS

In Table 1 are found the results of the teachers' ratings of the two groups. To simplify the table, only the mean ratings of the two groups and the coefficients of reliability of the differences in the mean ratings are given.

In Section A it will be noticed from a study of Table 1 that teachers rated the inferior group as possessing reliably more of 84 out of the 102 personality and behavior maladjustments. In Section B are found 5 other traits where the higher rating is suggestive of significance. In Section F is found the sole trait (feeling of superiority) on which teachers rate superior pupils as reliably higher than inferior. Interpretation of the above results will be discussed in a later section.

TABLE 1

COMPARISON OF 51 SUPERIOR CHILDREN WITH 51 INFERIOR CHILDREN—TEACHERS' RATINGS AND THE RELIABILITY OF THOSE RATINGS

Trait	Mean rating inferior group	Mean rating superior group	Coefficient of reliability
<i>A. Where the inferior group were rated as possessing reliably more of the following maladjustments</i>			
Grouchiness	1.049	.559	85.12
Peevishness	.696	.500	40.10
Unhappy and depressed	.971	.578	25.80
Cowardly	1.166	.500	24.90
Sauciness	.912	.578	23.50
Gossiping	1.519	.578	21.90
Mocking others	.774	.578	21.10
Impertinence	1.127	.539	20.30
Impoliteness	1.010	.637	19.11
Craving for sympathy	.784	.559	18.20
Rudeness	1.382	.618	17.40
Cheating	1.069	.500	17.10
Spitefulness	1.186	.519	16.11
Evades punishment	1.029	.637	15.40
Lack of desire for play	1.971	.656	15.20
Self-pity	1.010	.578	14.50
Truancy	.676	.578	14.40
Untrustworthiness	1.125	.618	14.40
Stammering	.775	.539	14.30
Disregard of rights of others	1.402	.598	14.10
Feelings of inferiority	1.950	.715	14.09
Obstinacy	1.735	.578	13.80
Inquisitiveness	1.696	.755	13.70
Temper tantrums	1.127	.617	13.70
Speaking aloud in school work	2.304	.755	13.60
Resentful	1.814	.735	13.38
Fighting	1.362	.578	13.03
Quarrelsomeness	1.441	.696	12.60
Too dependent	1.284	.754	12.60
Moodiness	1.500	.618	12.60
Lack of confidence in own ability	2.520	.755	12.50
Destroying materials and property	1.650	.598	12.30
Tardiness	1.735	.696	11.40
Unsocial	1.422	.657	11.20
Officiousness	1.147	.618	11.20
Stubbornness	2.303	.716	11.00
Lack of group spirit	1.872	.755	10.77
Roughness	1.363	.637	10.72
Meddlesomeness	1.637	.735	10.58
Excitable	1.324	.873	10.20
Interrupting	2.069	.875	10.15
Secretiveness	1.480	.657	10.10

TABLE 1 (*continued*)

Trait	Mean rating inferior group	Mean rating superior group	Coefficient of reliability
Sullenness	1.147	.696	9.90
Deceitfulness	1.225	.657	9.90
Persistence	2.388	1.088	9.70
Unsportsmanship	1.304	.657	9.37
Failure to confess fault	1.814	.794	9.30
Stealing	.794	.617	9.20
Lying	1.334	.735	9.00
Untidiness (personal appearance)	2.852	1.010	9.00
Bullying	1.147	.637	8.90
Daydreaming	3.088	1.422	8.90
Forgetfulness	3.275	1.324	8.80
Erratic	2.716	1.010	8.70
Nervousness	2.029	1.225	8.60
Failure to join group	1.755	.853	8.50
Smoking	.892	.578	8.30
Over-critical of others	1.343	.873	8.30
Chewing gum	1.245	.833	8.10
Sulkiness	1.834	.853	8.03
Meanness	1.167	.775	7.40
Overconfidence	7.350	.657	7.20
Loquaciousness	1.324	.951	7.10
Impulsiveness	1.931	1.167	6.90
Self-conscious	2.617	1.696	6.80
Shyness	2.950	1.333	6.70
Indifference	2.147	1.186	6.60
Timidity	2.323	1.382	6.50
Lack of interest in school work	2.422	1.363	6.50
Careless posture	3.598	1.637	6.13
Disobedience	1.637	1.010	5.80
Restlessness	2.637	1.578	5.80
Boastfulness	.735	.637	5.80
Tattling	2.265	1.363	5.40
Lack of effort	3.539	1.833	5.40
Inattention	2.660	1.431	5.01
Lack of concentration	5.186	2.990	4.85
Disorderliness in classroom	1.990	1.245	4.70
Laziness	3.960	1.794	4.70
Lack of ambition	3.069	1.637	4.50
Idleness	2.402	1.715	4.40
Silliness and giggling	1.422	1.049	4.30
Oversensitiveness	1.892	1.402	4.10
Profanity	1.049	.700	4.00
<i>B. Where the higher rating of the inferior group for the following maladjustments is suggestive of reliability</i>			
Teasing	1.794	1.341	3.80
Desire to show off	1.696	1.020	3.70
Conceited	.775	.696	3.70

TABLE 1 (continued)

Trait	Mean rating inferior group	Mean rating superior group	Coefficient of reliability
Untidiness in school work	3.598	2.362	3.60
Noisiness in halls, etc.	1.696	1.225	3.50
<i>C. Where the higher rating of the inferior group for the following maladjustments is not reliably higher</i>			
Lack of honor	1.167	.971	2.60
Whispering	2.422	1.912	2.44
Lack of emotional control	.922	.716	2.20
Carelessness	3.540	2.853	1.80
Boisterousness	1.363	1.254	1.10
Forgery	.539	.500	1.10
Obscene notes and stories	.539	.500	0.50
Thoughtlessness	1.519	1.480	0.40
<i>D. Where the rating of the inferior is less than that of the superior group on the following maladjustments but not reliably less</i>			
Overimaginative	.716	.853	2.50
Too suggestive	.676	.716	2.70
<i>E. Where the rating of the inferior group as less than that of the superior group is suggestive of significance</i>			
Overconscientious	.657	.696	3.80
<i>F. Where the rating of the inferior group is reliably less than that of the superior group</i>			
Feeling of superiority	.578	.618	12.25

In addition to the teachers' ratings, summarized above, the writer interviewed at least one parent of each of the 102 children studied. Interviews varied from 40 minutes to more than an hour in length. Since a number of the traits appearing on the rating scale apply only to the school situation, only 80 of the 102 traits were discussed with the parents. While the parents were given a copy of the rating scale the method employed was to discuss each trait in turn and, on the basis of the evidence submitted by the parent, the writer marked the copy of the rating scale during the interview. In this way it was felt that a more uniform standard of judging could be obtained. All data obtained during the interview were recorded in the child's case record file.

The parents' ratings were tabulated for each trait for each group of children and means standard deviations, and probable errors obtained. Using the same formula referred to above, the coefficients of reliability of the differences obtained were calculated. The results are given in Table 2 below.

TABLE 2

COMPARISON OF 51 SUPERIOR CHILDREN AND 51 INFERIOR CHILDREN—PARENTS' RATINGS AND RELIABILITY OF THE DIFFERENCES IN THE RATINGS

Maladjustments	Mean rating inferior group	Mean rating superior group	Coefficient of reliability
<i>A. Where the inferior group was rated as possessing a reliably higher mean rating on the following maladjustments</i>			
Truancy	.578	.500	33.80
Obscene notes and stories	.578	.500	28.00
Smoking	.912	.500	25.20
Oversensitiveness	7.166	3.049	14.16
Mocking others	.814	.500	11.30
Lack of honor	.814	.500	11.20
Lack of effort	2.676	1.539	9.60
Profanity	1.284	.500	7.70
Lack of group spirit	1.108	.657	7.40
Indifference	.814	.578	7.20
Unsocial	1.245	.774	6.90
Lack of interest in school work	2.814	1.147	6.07
Evades punishment	1.735	.951	6.00
Untrustworthiness	1.461	.833	5.70
Failure to join group	1.500	.735	5.60
Lack of ambition	2.108	1.127	5.50
Daydreaming	1.029	.735	4.90
Resentfulness	1.245	.755	4.80
Disregard rights of others	1.049	.657	4.80
Deceitfulness	1.480	.892	4.60
Tardiness	.578	.559	4.60
<i>B. Where the higher rating of the inferior group on the following maladjustments is suggestive of reliability</i>			
Meddlesomeness	1.186	.873	3.40
Lack of confidence in own ability	1.912	1.500	3.10
Stealing	1.402	1.127	3.00
<i>C. Where the higher rating of the inferior group for the following maladjustments is not reliably higher</i>			
Fighting	1.794	1.363	2.80
Tattling	1.715	1.304	2.80
Self-consciousness	3.265	2.265	2.60
Impertinence	1.931	1.324	2.50
Roughness	.735	.657	2.50
Idleness	1.166	.873	2.40
Sulkiness	2.265	1.715	2.40
Lack of emotional control	1.254	1.029	2.30
Disobedience	2.209	1.578	2.20
Failure to confess fault	1.598	1.206	2.10
Forgetfulness	2.324	1.755	1.90
Temper tantrums	4.304	3.029	1.80
Untidiness in personal appearance	2.931	2.324	1.60
Stubbornness	2.363	1.833	1.60
Domineering	1.951	1.441	1.50
Destroying materials and property	.892	.814	1.20

TABLE 2 (continued)

Maladjustments	Mean rating inferior group	Mean rating superior group	Coefficient of reliability
Forging notes, etc.	.578	.500	1.18
Unsportsmanship	2.520	2.147	1.10
Erratic	1.324	1.200	1.07
Bullying	.657	.637	1.02
Quarrelsomeness	2.069	1.833	0.90
Feeling of inferiority	1.775	1.637	0.90
Loquaciousness	1.254	1.147	0.87
Laziness	1.971	1.775	0.80
Grouchiness	1.422	1.324	0.73
Lying	2.029	1.833	0.68
Lack of desire for play	.735	.715	0.60
Nervousness	3.578	3.206	0.50
Too dependent	.853	.814	0.48
Teasing	4.148	3.813	0.47
<i>D. Where the rating of the inferior is less than that of the superior group on the following maladjustments, but not reliably less</i>			
Shyness	3.382	3.519	0.14
Desire to show off	2.362	2.441	0.19
Impoliteness	.735	.755	0.55
Too suggestible	.500	.757	0.80
Timidity	1.637	1.951	1.41
Inquisitiveness	1.833	2.461	1.70
Self-pity	.971	1.088	1.80
Persistence	2.598	4.069	2.00
Sauciness	1.049	1.284	2.05
Silliness and giggling	.735	.814	2.20
Impulsiveness	1.441	2.147	2.70
Obstinacy	1.127	1.931	2.80
Sullenness	.735	.892	2.90
Over-critical of others	1.088	1.617	2.90
<i>E. Where the rating of the inferior group as less than that of the superior group is suggestive of reliability</i>			
none			
<i>F. Where the rating of the inferior group is reliably less than that of the superior group</i>			
Feeling of superiority	.873	1.284	6.10
Overimaginative	.578	1.010	6.40
Boastfulness	.657	1.049	6.50
Rudeness	.637	.912	10.80
Conceited	.657	1.127	12.00
Overconfidence	.578	1.049	12.20
Overconscientious	.500	.696	18.50
Craving for sympathy	.757	1.300	20.60
<i>G. Where the ratings of the inferior group were the same as the ratings for the superior group</i>			
Cowardly	0	0	0
Spitefulness	.578	.578	0
Officiousness	.735	.735	0

Again taking a coefficient of reliability of 4 as reliable and of 3 as suggestive of significance, it will be noticed from Section A of the above table that parents rated the inferior group as possessing reliably more of 21 of the 80 maladjustments they rated. In Section B are found 3 others where the rating is suggestive of reliability. In Section F are found 8 maladjustments where the parents rated the superior group as reliably higher.

Comparing the results of the parents' and teachers' ratings, we find that out of the 80 maladjustments rated by both, 24 were given reliable ratings in agreement and 30 other maladjustments were rated reliably by one group and given a rating in the same direction by the other though falling short of reliability. Four other maladjustments, while rated in the same direction by both parents and teachers, fell short of reliability in both cases. Still four other maladjustments had a reliable rating by the teachers and a reliability of zero by the parents. This leaves only 18 out of the 80 maladjustments where teachers and parents disagreed as to which group was higher. Of these 18 there was a reliable rating in both groups of only five maladjustments. While the parents' ratings showed less reliability than the teachers, the results may be thought of as in substantial agreement. The agreements and disagreements in the ratings of both groups will be discussed in the next section.

INTERPRETATIONS

In attempting to interpret the results, the writer wishes to point out that he has made use of a great deal of data not included in the results of the teachers' and parents' ratings. A careful study has been made of *all* the data contained in the children's case records as outlined earlier in the paper, and also data obtained from the writer's personal observation of the children over a period of two to three years.

While not ignoring the presence of other factors, the writer is convinced from his study of the children that the differences in degree of maladjustment between the groups of superior and inferior children are, to a very large degree, occasioned by the "conflict over difference" or feelings of inferiority that have been occasioned in the latter group. The inferior group are maladjusted to the school curriculum and teaching methods of our lock-step system of education. Practically every one of the inferior group is retarded from one to five years. They have been faced with tasks that were too difficult for them and have met with repeated failures. Even where they have succeeded they have always been the "under dog"—getting "D" grades in school examinations. The inevitable comparisons have been constantly in evidence. They have been urged and pushed by their teachers who, even with the best will in the world, are held responsible to the parents and the public for getting children "through" the grades. At home there was evidence, in all but a few cases, of the inferior children's being compared with the superior children of the neighbors or sometimes

with superior children in the same family. The apparent result of such treatment is confirmed by the fact that the one boy of the inferior group who was well-adjusted had been wisely handled at home, his parents realizing the situation and providing for the joy of achievement in other ways as well as definitely helping him to adjust to inferior grades at school. At school, too, the more fortunate pupils with higher marks have often made it uncomfortable for their inferior comrades. Many of the latter have been called "dumb" and otherwise humiliated because of their lack of success in school work.

In order to discuss the list of maladjustments in as brief a way as possible, they have been divided into five groups: (1) violations of general moral standards, (2) transgressions against authority, (3) violation of school standards, (4) difficulties with other children, (5) undesirable personality traits.

1. *Violations of General Moral Standards.* Under this heading are listed stealing, untrustworthiness, deceitfulness, profanity, and smoking, on all of which both teachers and parents returned a significantly higher rating for the inferior group, and lying, obscenity, and lack of honor, on which one group gave a significantly higher rating and the other a rating in the same direction. From a study of the children the writer believes that the above are attempts to compensate for feelings of inferiority—profanity and smoking in elementary-school children seem to be an attempt to bolster up the ego—to prove to all and sundry that they are really "he-men." In regard to stealing, many children, lacking any adequate channel of self-expression and achievement in school work, have won the admiration of their peers by being dare-devil enough to steal something at first, perhaps, from a car, then from a fifteen-cent store, perhaps to be followed later on by stealing a car. Lying, deceitfulness, untrustworthiness, also come in the category of attempting to bolster up the ego. While the old idea of a very large proportion of delinquents being feeble-minded has been exploded, yet the fact remains that there are in our industrial schools and among other delinquents an undue percentage of dull normals and children of borderline intelligence. This is borne out by evidence submitted by Pinter, Cyril Burt, Lowrey, and others. One of the leading superintendents of industrial schools in the U. S. A. told the writer this summer that the great majority of his boys had started on their career of delinquency by being truants—in other words, by the failure of the school to provide adequately for the needs and interests of these boys.

2. *Transgressions against Authority.* This group is represented by disobedience, impertinence, and resentfulness. The last-named maladjustment was rated reliably higher for the inferior group by both parents and teachers and the former two by the teachers and in the same direction by the parents. While other factors undoubtedly contribute to these maladjustments a careful study of the data inclines one to the belief that a major

portion of the maladjustments are defense mechanisms—feelings and attitudes of defiance occasioned by their failure at school and the reaction to that failure by teachers, parents, and companions.

3. *Violation of School Standards.* Of those maladjustments rated reliably higher by both parents and teachers, truancy, tardiness, lack of interest in school work, lack of ambition, lack of effort, and lack of confidence in own ability are to be thought of as the direct result of the curriculum of the school being maladjusted to the child's needs and capacities. The urge to excel and succeed seems to be a basic need of human nature. "Nothing succeeds like success" is an old adage and its corollary, "Nothing stultifies like continued failure," might well be added. Faced with work which is too difficult, which satisfies no felt need, which leads to failure and to forever being the "under dog," the child soon acquires a dislike for the school and all its works. If reference is made to Table 1, it will be found that teachers give evidence of that maladjustment in the high rating they give the inferior group for lack of concentration, disorderliness in the classroom, inattention, idleness, untidiness in school work, noisiness, etc. These are merely camouflaged forms of lack of interest in work unsuited to the needs of these children.

4. *Difficulties With Other Children.* Both parents and teachers rate the inferior group as being reliably more unsocial, meddlesome, and as disregarding the rights of others, lacking in group spirit, failing to join the group, and in mocking others. In addition, teachers give a significantly higher rating on the following traits: bullying, tattling, teasing, fighting, quarrelsomeness, unsportsmanship, and roughness. This phase of the adjustment of inferior children to other children has often been overlooked. The present study reveals the extent and nature of that maladjustment. This is revealed not only by the presence of undesirable personality traits like oversensitiveness, shyness, self-consciousness, and feelings of inferiority which make a good social adjustment difficult, but also by those like bullying, fighting, quarrelsomeness, and domineering. In the latter the child's overcompensation for feelings of inferiority has led to aggressive traits which have brought him into direct conflict with others.

5. *Undesirable Personality Traits.* With regard to recessive personality traits parents and teacher agree that the inferior group rank reliably higher on oversensitiveness. Parents of inferior children were particularly emphatic on this point. The mean rating of the parents for oversensitiveness was over twice that of the next highest trait rated. A study of the children indicates that this is the result of their continual failure at school and the comparisons made at school, at home, and on the playground. Daydreaming is ranked reliably higher for inferior children by both parents and teachers. Apparently these children tend to withdraw from the world of reality where they are maladjusted to an inner world of imagination. Other recessive traits, which were rated reliably higher by teachers and

not reliably higher but in the same direction by parents, were feelings of inferiority, self-consciousness, too dependent, lack of confidence in own ability, too suggestible, and nervousness.

In negativisms teachers rated stubbornness, sulkiness, and sullenness as reliably higher in the inferior group and the parents' rating, while not reliable, was in the same direction.

In aggressive personality traits teachers rated domineering as reliably higher in inferior children and the parents' rating was in the same direction. Both parents and teachers rated superior children as reliably higher for feelings of superiority.

An interesting light is thrown on the personality traits of inferior children by the tendency found in them to play with children younger than themselves. One element in this seems to be their urge to dominate which, not receiving any adequate outlet with children of their own age, seeks its outlet with smaller and younger children. This is probably accentuated by the feelings of inferiority of inferior children which make them bolster up their ego by overcompensation in bossing these younger children.

In evasions, failure to confess a fault and forgetfulness were rated by teachers as reliably higher and the parents' rating was in the same direction. This was true also of interferences as shown by meddlesomeness and destructiveness.

In lack of emotional control teachers rated temper tantrums as reliably higher in inferior children and the parents' rating was in the same direction. Grouchiness and untidiness of personal appearance were found to fall in the same category.

Space forbids discussing in detail the above traits, but many will be recognized as direct reactions of failure in one of the largest aspects of a child's life—his school life—while others may be recognized as defense mechanisms to bolster up the child's wounded opinion of himself.

There remain to be described the five traits where teachers and parents gave reliable ratings in opposing directions. These are rudeness, craving for sympathy, conceit, overconfidence, and boastfulness, in all of which teachers rate the inferior group as higher and parents rate the superior group as higher.

With reference to craving for sympathy the writer is inclined to think that superior children eagerly report their school achievements at home and seek the approbation of their parents, while the inferior children try to carry off the fact of their low standing by either being, or pretending to be, satisfied with "D" grades. The inferior child, compensating for his feelings of inferiority, tends to assume an independent attitude, to swagger somewhat, and to try to create the impression that he is a "tough guy." At school the child is usually not allowed to assume the attitude that low grades are all right, nor is he so likely to get away with aggressive be-

havior. As a result the inferior child often tries to seek sympathy from the teacher in other ways.

The traits of conceit, boastfulness, and overconfidence are, in the case of inferior children, largely defense mechanisms, apparently interpreted here more truly as such by the parents. In addition, teachers, knowing how poor the inferior child's schoolwork is as compared with others, tend to rate him as having a higher degree of conceit, overconfidence, and boastfulness, not warranted by the facts. It would seem, too, that parents tend to rate superior children higher on these traits because these children report their school achievements at home with much pride. With reference to rudeness, a study of the children concerned leads the writer to agree with the teachers' judgments. The difference would seem to be accounted for, in part, by a difference in the standards of conduct held by the parents of the children. The writer has also the feeling that there was a tendency on the part of the parents of well-adjusted children to be more critical on this point, and for the parents of children with many major maladjustments to pass over factors like rudeness more uncritically.

The investigation as a whole brings much evidence, of a damaging nature, against the traditional system of a uniform curriculum for children of all grades of ability, taught by uniform methods. It also constitutes an indictment of the emphasis now placed by parents and the public generally on the passing of examinations and on the purely intellectual content of school work. Parents and teachers must come to realize that it is the duty of the school to teach the whole child—not only to develop his intellect but to develop in him wholesome personality and character traits. Only so can the mental hygiene movement make its full contribution to society in the promotion of sound, wholesome living. The key to mental hygiene progress is, therefore, to be found largely in the schoolroom.

*University of Saskatchewan
Saskatoon, Saskatchewan, Canada*

A TIME-SAVING DEVICE FOR THE CONSTRUCTION OF ATTITUDE SCALES¹

ROBERT H. SEASHORE AND KATE HEVNER

It is the purpose of this study to demonstrate a time- and labor-saving device for obtaining subjective ratings of stimuli by the method of equal-appearing intervals. The device may have some importance because it is especially applicable to the making of attitude scales after the method de-

¹This study is a part of a larger research project on the teaching of appreciation in music under a grant made by the Carnegie Foundation to the cooperating departments at the University of Oregon.

vised by Thurstone and used in making the scales published by the University of Chicago Press.

In connection with a research program in music appreciation the experimenters wished to devise a scale for attitude toward music, or opinion about the value of music, and it was decided to follow the procedure outlined by Thurstone and Chave (1) in their monograph, "The Measurement of Attitudes." This procedure involves the following steps:

1. *The defining of the attitude variable.* This was defined roughly as the value music has for any individual, or more concretely, the amount of time and money he would be willing to spend on music.^a

2. *The selection of experimental material.* Over 200 statements were collected by consultation and reading, from which a selection of 100 statements of possible reactions toward music was made, on the basis of their interest, unity of idea, clearness, and relevance.

3. *The assignment of scale values.* The 100 statements were given in mimeographed form to 150 subjects, who rated or sorted them by the method of equal-appearing intervals into nine classes on the basis of the different degrees of value they expressed for music.

4. *The selection of the 40 best items to be retained in the scale.* A tentative scale of 55 items had been selected on the basis of (1) clearness of diction, (2) ambiguity (Q values), and (3) range of scale values. These 55 statements were presented to 100 additional subjects who checked all the items with which they were in agreement, and from these results two further checks were made, and 15 more of the statements were eliminated.

5. *The establishment of the reliability and validity of the scale.* The self-correlation gives a satisfactory coefficient of reliability for comparisons of group differences (approximately .80).

The new labor-saving device was introduced in connection with the third step, the sorting of the slips into the nine equal-appearing intervals. In accordance with the standard procedure, 75 of the 150 subjects were given an envelope containing the 100 statements printed on separate slips, the

^aThe measurement of this variable is a somewhat more difficult problem than the measurement of more openly controversial attitudes, since the range of attitude is more limited and more unevenly distributed. In the measurement of opinion on the more open questions such as attitude toward prohibition, toward the Negro, or toward pacifism, one expects to find many persons who are maintaining a strong position either for or against the question, as well as many neutral persons, but in regard to the value of music, the range of attitude is largely between indifference and enthusiasm, with only a few exceptions in persons who are strongly against it. This restriction in range is reflected also in the reliability coefficients obtained for the scale. Self-correlation of 40 items against 40 gives an r of $.80 \pm .02$ on 142 subjects. Self-correlation of 20 items against 20 yields r 's of from .61 to .77 on various groups of subjects. Self-correlations reported by Thurstone for these scales are generally about .90 or more.

nine cover slips lettered A, B, C, D, the nine paper clips, and directions as follows:

INSTRUCTIONS FOR SORTING

1. The enclosed hundred slips contain statements in regard to the value of music.

2. We are going to include some of them in making a scale that may later be used to measure the attitude toward music of people of different ages, training, geographical location, etc.

3. As a first step in making this scale, we want a number of persons to sort these slips into nine piles.

4. You are given nine slips with letters on them, A, B, C, D, E, F, G, H, I. Please arrange these before you in regular order. On slip "A" put those statements which you believe express the highest appreciation of the value of music. On slip "E" put those expressing a neutral position. On slip "I" put those slips which express the strongest depreciation of music. On the rest of the slips arrange statements in accordance with the degree of appreciation or depreciation expressed in them.

5. This means that when you are through sorting you will have nine piles arranged in order of value estimate, from A the highest, to I the lowest.

6. You may, if you prefer, proceed by first sorting the slips roughly into three piles ("appreciation," "more or less neutral," and "depreciation"), and then re-sorting each of these three piles into three subdivisions to get the full nine piles.

7. Do not try to get the same number in each pile. They are not evenly distributed.

8. The numbers on the slips are code numbers simply the result of a chance arrangement, and have nothing to do with the arrangement of the piles.

9. You will find it easier to sort them if you look over a number of slips chosen at random before you begin to sort.

10. It will probably take you about forty minutes to sort the slips until you are entirely satisfied with your distribution.

11. When you are through sorting, please clip the piles together, each with its letter slip on top. Replace the nine sets clipped carefully in the big envelope, and write your name and section on the outside.

The other 75 subjects were given the same statements printed on nine pages, with letters in the left-hand margin as in the sample below, and with paragraphs 3, 4, 5, and 6 revised and condensed into 3 and 4 as follows:

3. As a first step in making this scale we want a number of persons to rate these statements by assigning them to nine different classes.

4. We will call these classes A, B, C, D, E, F, G, H, and I, and you will find these letters directly to the left of each statement. If you find a statement which you believe expresses the highest appreciation of the value of music, underline the letter A. For a statement which seems neutral or non-committal

underline E (the middle letter), while for those statements which express the strongest depreciation of music, underline I. Other degrees of appreciation or depreciation may be indicated by underlining one of the other possible letters to represent intermediate ratings.

A B C D E F G H I³ (22) I believe that if students devoted more time to enjoyment of music and less to acquiring information in intellectual subjects they would be better equipped for life after college.

A B C D E F G H I (23) Music stimulates and encourages me in my life and work.

A B C D E F G H I (24) To me music is of no greater or lesser importance than any of the other arts and sciences.

The results from the two different methods, sorting according to the standard procedure, and rating according to the new directions, were tabulated separately and the two cumulative frequency curves for each statement (representing the number of times it was placed on the piles from 1 to 9) were plotted on the same base line. The medians, which represent the scale values of the statements were read directly from these curves, and, in a few cases, where more than 50% of the subjects placed the statement on the end piles, the curve was extrapolated by approximation. The semi-interquartile range (Q) for each statement, which indicates the differences or spread of opinion in regard to it, was also read directly from each of these curves.

In terms of the sorting method, which has been the standard procedure, the rating method was a very close approximation from every point of view. Inspection showed that the shapes of the two curves were surprisingly similar. Significant details were always present in both. Overlapping and identity were the rule, and in very few cases was there any real difference apparent to the eye.

Figure 1 shows the plot of the medians for the two methods, and the close approximation to the straight line relationship is very apparent. The 45-degree angle of the plot indicates also that the constant tendency to raise or lower the medians in either method is negligible, and that the deviations between the medians are about equal in all parts of the range.

Table 1 shows the amount of deviation of the medians by rating, when the medians by sorting are taken as a standard. The mean of these deviations is $-.187$ with a sigma for the distribution of $.325$. In other words, there is a constant tendency for the medians by the rating method to fall

³The arrangement of scale values in the left-hand margin was made on two grounds: (1) It gave the impression of a linear scale, and (2) it might help to correct any tendency to favor certain letters rather than others. It also guarantees legibility of records.

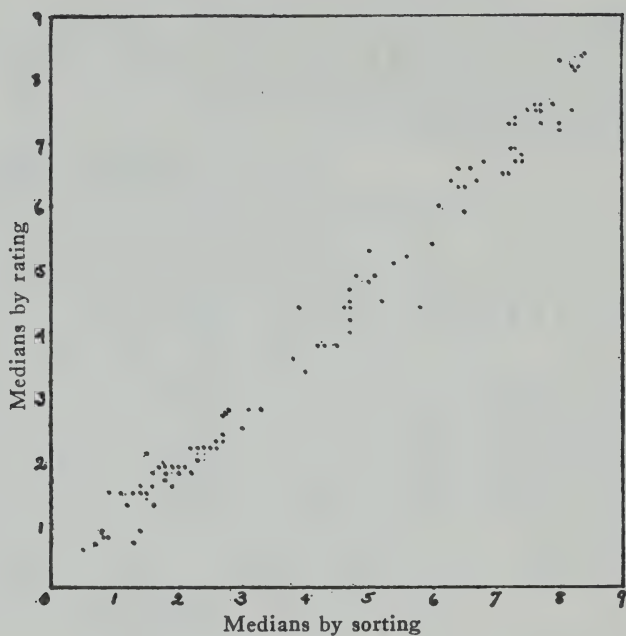


FIGURE 1

SHOWING THE RELATIONSHIP BETWEEN THE SCALE VALUES (MEDIAN) OBTAINED BY THE TWO DIFFERENT METHODS

TABLE 1
DEVIATIONS OF MEDIAN BY RATING FROM MEDIAN BY SORTING

Scale steps	Frequencies
+0.6	2
0.5	0
.4	2
.3	2
.2	5
+.1	13
0.0	16
-.1	8
.2	12
.3	11
.4	7
.5	5
.6	8
.7	7
-.8	1
-1.4	1

$N = 100$; $M = -.187$; $\sigma_{dts} = .325$

TABLE 2
DEVIATIONS OF Q'S BY RATING FROM Q'S BY SORTING

Scale steps	Frequencies
+1.1	1
1.0	
0.9	
.8	
.7	2
.6	1
.5	3
.4	5
.3	7
.2	12
+ .1	25
0.0	25
— .1	8
.2	8
— .3	3

$$N = 100; M = +.103; \sigma_{dis.} = .225$$

approximately 0.2 of a step below the medians by the sorting method, on a scale range of nine steps. This is probably not a significant difference.

Table 2 gives the amounts of deviation of the Q values by rating from the Q values by sorting, and again the deviation is small. There is a tendency for the Q values for the rating method to be somewhat larger than those for the sorting method, since the mean of the deviations is $+.103$.

Since the two methods yield data which are so nearly identical and since even a comparison of two groups using the same method would show some difference, the use of either one or the other would be determined on other grounds—efficiency or expediency, ease or pleasantness in administering them. The method of rating, in contrast with the sorting, has two apparent defects. (1) The statements cannot be arranged in random and different orders for each subject, but each statement is always read immediately after a certain other one, and it is conceivable that, in some cases, the juxtaposition of certain statements might lead to a constant error of misplacement. This defect can be partially obviated by arranging the nine pages in as many different orders as possible. Some evidence that it is not the cause of the slight constant errors found for the rating method may be drawn from a study of the nine statements which appear at the tops of the nine different pages of printed material. These statements were not read following any one particular statement, and should therefore be free from this defect of suggestion. The mean deviation, however, for these nine statements was $-.25$ as compared with the $-.187$ of the 100 statements in the case of the medians, and $+.089$ as compared with $+.103$ for the Q values. (2) The second defect is in connection with the subject's activities in sort-

ing the slips. He does not have his nine piles in plain sight before him, and he can neither rearrange nor reassure himself in his judgments by looking at the other statements on the piles. He can, however, go back over his ratings to check them.

Although there is no objective evidence to show that the subjects preferred the rating method to the sorting method, there is some subjective evidence which indicates that the subjects found the rating easier, faster, and more convenient. Without exception, all those who were offered a choice asked to be allowed to work by the rating method. The method is chiefly advantageous, however, in saving the time of the experimenters. After the statements were received from the mimeographers they had to be cut apart, into 100 piles of 75 different statements each, and then enclosed, together with the cover slips, paper clips, and folded page of directions, in a large envelope, a process which occupied 12 hours of time. On the other hand, only $1\frac{1}{2}$ hours were necessary for the reassembling and stapling of the nine pages in readiness for the 75 subjects by the rating method, a saving of 87%. Likewise, with the tabulation of the results, the sortings required 15 hours, while the ratings, which could be arranged in regular order, were recorded in 8 hours, a saving of approximately 50%.

SUMMARY

A method of rating on a nine-point scale which is printed on the left-hand margin for each item has been substituted for the standard method of sorting items into nine piles, from separately printed slips. The rating method saves from 50% to 87% of time on the various processes involved in making attitude scales by Thurstone's method of equal-appearing intervals.

The subjects find the task easier and more pleasant, and the results, when two groups of 75 subjects were compared, show negligible differences in the medians, or scale values of the items, and in the difference or spread of opinion (Q value) in regard to them.

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University of Oregon
Eugene, Oregon

University of Minnesota
Minneapolis, Minnesota

SEAT PREFERENCE IN THE CLASSROOM

PAUL R. FARNSWORTH

In 1921, Griffith (2, pp. 36-38, 42-43, 43-47) published a paper in which he demonstrated the position in his classroom at which the best grades were obtained. This happened to be the front center of the room. The grades were, in the main, progressively poorer in the areas farther and farther removed from this region.

In classroom discussions of Griffith's findings many of the present writer's students seemed to agree quite readily that these results were to have been expected. That the seats at which Griffith's students received the best grades were the *best* seats appeared to be their view of the matter. As a result of these class arguments the attempt was made to gather data relative to the preferences to be found for the several classroom seats.

Although the situation which was presented was somewhat artificial, the students appeared to take the task seriously. Care was taken to query only those subjects who said they were unacquainted with Griffith's work. Five hundred and ten students answered the query. These came about equally from the four undergraduate groups. Papers, similar to the one below, were presented.

TABLE 1

This represents a classroom with 110 seats. It is an inside room with artificial illumination. Assume that it is possible to see and hear perfectly from all portions of the room. The ventilation is satisfactory. Put a check on the seat which you would prefer to occupy. (If you have auditory or visual defects, do not fill this out.)

PLATFORM

—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—

The number of preference checks each seat received was tabulated. The results are given in Table 2. Thus, 7 subjects checked the middle seat of the first row as the one they preferred; 17 preferred the one just behind it, etc. (As the data for the four college years when tabulated separately displayed very similar scatters they are not given in this paper.) The table quite conclusively shows that for these Stanford subjects the seat position at which Griffith's subjects received the best grades (or approximately

TABLE 2
NUMBER OF SUBJECTS CHECKING SEATS
PLATFORM

2	1	1	1	5	7	3	1	3	0	2
0	0	1	8	8	17	13	5	0	0	0
2	1	6	9	17	56	26	13	2	0	1
1	1	0	12	19	38	15	10	3	0	1
3	2	1	7	12	24	19	2	3	1	7
2	0	1	3	5	21	6	2	1	0	2
0	1	1	3	2	9	0	3	3	0	0
0	0	2	3	2	5	3	1	3	0	0
0	0	0	1	0	0	0	0	0	0	0
1	2	0	1	4	13	5	0	0	1	6

N = 510

this area) was the most preferred. From this point the preferences dropped off quite progressively in all directions except for a slight increase at the rear center.

Griffith and subsequent writers in the field of social psychology have offered a number of hypotheses to account for optimum grade areas. Among these numerous theories is the notion that the instructor tends to direct his attention more frequently toward this high-grade area than toward any of the less favored. For some time this idea has seemed very plausible to the present writer (*not* as an *exclusive* explanation), due in part most probably to the following incident and its aftermath. Some years ago when Stanford was stricter than it now is in compelling its students to attend classes regularly, many instructors arbitrarily assigned seats to their students and took daily attendance. In one class the remark was made by a student that she had attended courses in chemistry, economics, and psychology in the same room, and that it was her observation that the instructors all favored the right half (students' right) of the room. That is, the faculty members lectured primarily to that half. The present writer followed up this observation by obtaining the seat positions of and the course grades received by the members of six classes which had occupied this classroom. Four different instructors and three fields of study were involved. The class enrollments were all of one hundred or larger. In every instance the students on the right side of the room had received the higher grade means. The critical ratios (D/σ_D) ranged from 1.82 to 4.13. A check on the Thorndike college aptitude scores which were received showed only three of the six groups with the higher scores on the right side of the room.

In the opinion of a number of the students, these results were caused by the avoidance on the part of the instructors of the glare from several large windows on their right (students' left). This glare would tend to force them to lecture primarily to the side of the room in which the best grades had been obtained. Weight was given to this hypothesis both by the com-

TABLE 3
THORNDIKE'S AND GRADE AVERAGES

PLATFORM

—	—	—	—	—	—	—	—	—	—	—
			68	71	83	87				
—	—	—	1.36	1.46	1.88	1.61	1.68	—	—	—
				78	82	79	83			
—	—	—	1.74	1.44	1.60	1.59	1.66	—	—	—
				77	78	79	82	82		
—	—	—	1.49	1.56	1.60	1.73	1.67	—	—	—
				74	79	81				
—	—	—	1.47	1.38	1.49	1.42	—	—	—	—
					84					
—	—	—	—	1.80	1.22	1.64	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—

ments of the instructors and by the fact that the smallest critical ratio was obtained from a winter-quarter class at a time when artificial illumination was most employed. The quarter after these data were collected one instructor was told of the findings and asked to attempt to deliver his lectures more evenly to the two sides of the room. This time the grades showed no difference (critical ratio of .08). Unfortunately these observations could not be carried further as attendance was no longer taken, and the writer's classes were moved elsewhere. The findings are, therefore, of little scientific worth, and are offered here merely to indicate what has probably colored the present writer's opinions in this field.

In the study reported at the beginning of this article the subjects were asked for reasons for their preferences. The answers were varied. The majority of subjects (68%) "just liked" the seats they checked. Certain ones (35%)¹ claimed to avoid the sides and backs of classrooms because the students there were prone to be noisy and inattentive. The front seats were avoided by several (1%) because of possible spray from the lecturers' mouths (at least this was the reason given)! According to 23% the front center was preferred because from this point one could see the speaker without undue strain to the head and neck muscles. *Twenty per cent mentioned the front center as the point toward which the lecturer most frequently directed his attention.* These answers were probably quite spontaneous and not well considered. However, it seems worth noting that so many mentioned the direction-of-attention idea.

The present writer has also assembled the Thorndike scores and the

¹These percentages do not total 100 as a number of the subjects gave more than one reason for the preferences.

grade averages received by the checkers of the various seats. In Table 2 the Thorndike means are given above and the grade averages below. The grand mean of the former was 79 (no Thorndike scores were available for certain of the raters); that of the latter was 1.56 (the larger the figure the better the grades). These data seem to show little or no relationship between the seat preference and either Thorndike or grade average.

In conclusion it can be said that seats in the front center of the classroom were most preferred by 510 Stanford students almost equally distributed as to school year. This position of the room coincides with the point at which Griffith's subjects received their highest grades. Among the theories concerning possible causes for these phenomena is the idea that the instructor lectures most intensively to this area. The writer's belief in this theory is expressed. No relation was found between preference and Thorndike score or school grade.

Note: Since the above article was sent to press the writer's attention has been called to a 1932 Master of Arts thesis from Columbia University, by M. M. Magoon. In this study the author sent questionnaires to 434 high-school teachers requesting information about the abilities of students occupying the several portions of their classrooms. An index ratio or ratio of failure was developed which divided the percentage of failures in any section by the percentage of students occupying the section. Indices were figured for subjects in the following sections of the rooms: side, center, back, front, within the 60-degree visual cone, and without this angle. The values as found were 1.17, .92, 1.00, .99, .94, and 1.11 respectively. The teachers of one of the largest schools studied agreed that the students of the center rows were most under their visual control.

Magoon quotes Elsbree (1), who, resting on the authority of Morrison (4), states: "It has been found that failures are more apt to occur in the case of pupils who are seated along the sides and in the corners of a wide classroom than among the pupils who are seated directly in front of the teacher."

It would appear that the experiments of Magoon and the statement of Elsbree fit well the findings of Griffith. The present writer's theory of the importance to grades of the areas toward which the teachers attend most intensively seems also aided to some extent.

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*Stanford University
California*

AN ACQUAINTANCESHIP QUESTIONNAIRE AS A TEST OF
SOCIABILITY

JUSTIN J. STAUTER AND LEONARD M. HUNTING

There is a widely recognized need for the development of objective methods of measuring the social traits and functions of the individual. Among the traits and functions in which measurement would yield the most immediate and practical results is the trait variously referred to as sociability, interest in persons rather than in things, social skill, etc., and its corresponding behavior pattern of acquaintanceship or social participation. Hope for the practical application of measures of these particular traits and functions in the near future is extended by such studies as that of Thurstone (3), who shows by multiple-factor analysis that interest in persons is one of four determiners of occupational success. The bearing of the same measures upon certain theoretical problems regarded as important by most psychologists working in the field of personality is pointed out by the results of Heidbreder (2), who, using 104 questionnaire items intended to distinguish introverts and extroverts, found that the single item most predictive of the total score was one requesting the subject to state whether he limited his acquaintance to a few intimate friends or had a wide and rather superficial acquaintanceship.

The authors have been experimenting during the past two years with an acquaintanceship questionnaire which was originally intended to search for characteristic qualitative patterns of acquaintanceship, the hypothetical assumption being that personality traits in part determine, and in part are determined by, the social contacts in occupational, religious, fraternal, recreational, and other circles of social interaction. It soon developed, however, that the solution to this problem, which the authors still regard as highly important to the progress of social psychology, lay far beyond the available facilities. Hence the results with which this paper is concerned are those based on raw quantitative scores, i.e., the total number of acquaintances.

The material of the questionnaire consists of a standard list of 191 commonly used designations of types of persons, embracing those by occupation, religion, recreational interest, nationality and race, fraternal affiliation, academic classification, and certain other designations, miscellaneous but familiar. After each designation there appears a choice of numbers, one of which is to be encircled by the subject as that most nearly representing the extent of his acquaintanceship with that particular kind of person, according to the definition of acquaintanceship furnished in the directions.

The printed directions and sample items of the questionnaire follow:

Below you will find a wide list of types of persons, representing examples of the major social groups. We are interested in the extent of social contacts of college students. We wish you to estimate the extent of your own acquaintanceship with each

of the types mentioned below *by drawing a circle around the figure which represents the most accurate statement of the number of persons with whom you are acquainted of that type.* For present purposes consider yourself to be acquainted with a person when on sight you know his name and he knows yours.

Even if you feel that your answers are inaccurate, your guess will be valuable to us.

Example:

Office boys 0 1 2-6 7 or more

If you know no office boys by name who also know you by name, circle "0," etc., etc.

Baseball fans	0	1	2-6	7 or more
First cousins	0	1	2-6	7 or more
Art students	0	1	2-6	7 or more
Elks	0	1	2-6	7 or more
Nurses	0	1	2-6	7 or more
Retail salesmen	0	1	2-6	7 or more
Methodists	0	1	2-6	7 or more
Filipinos	0	1	2-6	7 or more
Neighbors	0	1	2-6	7 or more
Seventh Day Adventists	0	1	2-6	7 or more
Tennis players	0	1	2-6	7 or more
Odd Fellows	0	1	2-6	7 or more
Pre-medicine majors	0	1	2-6	7 or more
Frenchmen	0	1	2-6	7 or more

The questionnaire was administered to a total of 621 subjects in classes ranging in size from 8 to 125, comprising students of all years. The classes were in the departments of psychology, sociology, and education. Ordinarily the "experimenter" was the instructor of the class concerned. No special pains were taken to secure rigid experimental conditions. The time necessary for administration to a class is approximately 40 minutes.

Of the 621 questionnaires 9 were found to be anonymous and were discarded. There were no incomplete papers or papers containing preposterous or ludicrous responses, although the nature of the material gave opportunity for such. The novelty of the material seemed to elicit cooperation and interest on the part of the subjects.

The questionnaire was scored in terms of total acquaintances by the summation of the encircled values. The interval "2-6" was arbitrarily scored as 4, and the interval "7 or more" as 8. Omissions were counted as zeros. In those rare cases where two choices were encircled for the same item, the highest choice was scored. Using an electric calculator the scoring requires 3 to 4 minutes per paper.

This method of scoring yielded a distribution with a range of 50 to 1150, a mean of 507.6 and a standard deviation of 181.1. The curve was approximately normal in form. Since the items were arranged in random order, the score on the first page of 100 items was correlated with the score on the second page of 91 items to obtain the self-consistency of the test.

This correlation was $.850 \pm .005$ (433 cases). Corrected by the Brown-Spearman formula of $2r \div (1+r)$, the reliability of the whole questionnaire was .918.

Criteria upon which to base validation were, of course, unsatisfactory and difficult to secure. Ratings or jury judgments arouse theoretical objections and, in this case, were impracticable on account of the necessity for conserving class time. For the same reason it was not feasible to administer other tests of similar or related traits to the same subjects in sufficient numbers to obtain dependable correlations. It was finally decided that mention in the college newspaper and annual was the most satisfactory criterion available. Only such mention as furnished evidence of social participation as opposed to academic or athletic distinction was considered. Other mention obviously unrelated to social traits was also disregarded. Seventy-seven of the 612 students had entered school after the latest annual and the latest bound volumes of the daily newspaper had been published. Since these 77 had no opportunity for mention they were disregarded in the comparison of acquaintanceship scores between the "mentioned" group and the "not mentioned" group. Examination of the preceding three issues of the annual revealed 108 of the 535 subjects mentioned according to the above specifications. Examination of every fourth daily newspaper for a half-year period revealed 81 of the 535 so mentioned. Differences between the groups in terms of acquaintanceship score are shown in Table 1.

Correlation between scores on the questionnaire and scores on a test of ability to associate names and faces, similar to those used by Gilliland (1) in his "sociability test," was $.080 \pm .019$ (158 cases). Correlation with scholarship as measured by number of errors made during the regular course of objective examinations given in three elementary psychology sections was $.013 \pm .068$ (97 cases). Correlation with intelligence as measured by percentile rank on a college aptitude test given at entrance was $.168 \pm$

TABLE 1

	Mentioned		Not mentioned		Differ- ence in means	Differ- ence S.D. of D
	No. of cases	Mean score	No. of cases	Mean score		
Daily newspaper	81	613.3	454	498.0	115.3	8.40
College annual	108	565.8	427	501.8	64.0	4.83
Newspaper or annual*	129	575.8	406	499.2	76.6	7.67

*Students mentioned in either the newspaper or the annual.

.043 (165 cases). No significant differences were found to exist between scores of men and women, or between the scores of students working part-time at gainful occupations and those not so employed.

Considering the results obtained by the use of the raw quantitative scoring of the questionnaire, there is indication for further work which should include validation with more and better criteria; correlation with existing tests and ratings of related traits, especially personality traits; and trial to determine whether the "test" could be employed to predict occupational success.

The subdivision of the total numerical score into scores in each of the circles of social interaction previously mentioned, the separate validation of each group score, and the subsequent treatment of the various scores in profile was the projected method of study of qualitative differences in acquaintanceship. Preliminary results having been encouraging, the authors intend to avail themselves of further opportunity for continuation of this line of approach.

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University of Washington
Seattle, Washington

BOOKS

EDWARD K. STRONG, JR. *Change of Interests with Age*. Stanford University, Calif.: Stanford Univ. Press, 1931. Pp. 235.

Strong's other studies of interest are doubtless familiar to readers of this journal. They involved having large numbers of people in different occupational groups check their likes or dislikes for a rather wide range of items. The results were analyzed with reference to the selection of items which were differential of various occupational groups and were weighted accordingly to give occupational interest scores. The present work deals with a portion of the same data but makes the analysis from the standpoint of age, rather than occupation. The desire back of the earlier study was to some extent one of vocational guidance or selection and it seemed that differential scores in interest were possible. The question, however, arose as to whether the interests characteristic of an occupational group were present before they entered the occupation or were the results of the occupation itself. The former alternative would lend itself much better to problems of guidance. One of the main conclusions of the present work is that the changes of interest with age are, on the whole, rather small so that we may conclude that interests are responsible for choice of occupations rather than the resultant of them. Furthermore, the author is concerned more with the sum total of interests and the whole pattern, rather than with the fluctuations in detailed individual interests. It is this sum total that is involved if we wish to predict behavior.

The author conceives of interest as accompanied by pleasant feelings and a dynamic tendency to seek the object or to do something with it. Aversions seem to be the opposite of interest. The data involved in the present study are the answers of 2340 men from ages 20 to 60 to the questionnaire above mentioned. These men are drawn from eight different occupations and allowance made for the different numbers in each age group from each occupation. Most of the analysis involves grouping the ages by decades with the mid-points of the groups 25, 35, 45, and 55. The author recognizes that the ideal approach would be to study the same individuals throughout life and note changes of interests. This, of course, is impossible, and the next best thing is to take considerable numbers at each age level and assume that the differences between the ages are about the same as would be obtained if we had the same individual throughout. He also realizes the need for some measure of the intensity of interest which is not involved in the present technique. He suggests the possibility of paired comparison methods for further study.

The introductory chapter gives a summary of the work. A few of the

conclusions may be mentioned. There seems to be little change in the actual amount of interest expressed, on the whole. The different age groups seem to have about the same proportion of items which they like or dislike. The average item increases or decreases in liking only about 7% in the entire age range. The differences are somewhat greater regarding personal activities and amusements and somewhat less regarding peculiarities of other people and one's own characteristics. What change exists is not uniform. There is more change between 25 and 35 than between subsequent decades. It is possible that from the vocational standpoint the younger men are somewhat penalized because some of them are not in their ultimate occupational group as yet. On the whole, differences as represented by occupational interests are much greater than differences due to age.

If we analyze individual classes of items we find the greatest change in items suggesting physical skill and daring. The older men do not like such activities as much as the younger men. The next greatest change is for items involving interference with established habits or customs. There is an increasing disinclination to change in the later years. Amusements seem to show some decline with age, except such as are distinctly cultural.

Older men seem to lean toward the types of amusement which one can pursue alone. The foregoing changes are not due to conflicting sets of occupational interests but seem typical of all the eight occupational groups involved in the study.

The remainder of the book gives in considerable detail the data on which the foregoing conclusions are based. There are 73 tables involved, some of them very extensive. The statistical techniques employed are adequate to the data involved. A statistician who wants data with which to experiment will find plenty of it here.

Some of us are still a bit perturbed over the fact that interest measurements at present for the most part involve something bordering on a questionnaire in which we have to take the subject's own statements regarding the matter. Objective measurements do not exist as yet to any extent. However, the answer seems to be empirical and with the vocational analysis, for example, Strong has shown the possibility of depriving differential scores. If the questionnaire procedure is justified in that connection, we certainly must admit the value of analyzing similar data from the age standpoint.

The book is a rather technical account written for the scientist who knows his technique and knows his statistics. The layman will probably stop after reading the first chapter. Vocational counsellors may find many points of value in the individual tables which abound throughout the book. The only danger on their part will be that of stressing one or two individual items from a prognosis standpoint, rather than doing as the

author suggests and considering the whole general interest pattern. The book answers the main question which it set out to answer, namely, the question whether interests do change very significantly with age. It is eminently worthwhile to know that such changes are far less than the changes associated with presence of the individual in different vocations. This knowledge very definitely strengthens our hand in using Strong's earlier type of vocational interest analysis for definite purposes of guidance or selection.

HAROLD E. BURTT

*The Ohio State University
Columbus, Ohio*

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THE THEORY AND CONSTRUCTION OF THE PERSONALITY INVENTORY*¹

From the Department of Education and Psychology of the Pennsylvania State College

ROBERT G. BERNREUTER

Since the days of Hippocrates and Theophrastus, men have attempted to classify the personalities of their fellow men, to describe and to explain those characteristics that mark one man as different from another. Developing at first as a mere avocation, such attempts have recently been undertaken as a result of a need which has been growing more and more insistent during the past quarter-century.

Until recently, the emphasis has usually been upon the description and classification of the total personality, as though it were something simple and static. However, with the growing realization of the complex and dynamical nature of personality, there has developed a more modest ambition. Especially during the past decade men have been content to study and describe single aspects of personality. This has been a hazardous procedure—hazardous because the importance which becomes attached to a single aspect has at times threatened to obscure the still greater significance of the total integrated personality. Nevertheless, it has been fruitful, because it has made possible an empirical attack on these important problems which has been long overdue.

During this past decade, far too small a proportion of the attention which has been given the matter of personality traits has been directed toward the devising of adequate tests. The demands for results have been so urgent that in many instances inadequate devices have been widely used, both for research and for guidance purposes.

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The most successful of the tests which have been constructed have utilized as data the answers given by the subjects to questions concerning themselves. This is the time-honored method of the psychiatrist and counselor, with, however, more adequate means being used to evaluate the reports which the subjects give concerning themselves.

In the construction of such tests it has been assumed that the behavior of an individual in a given situation is symptomatic of a *single* trait only. As evidence of this, it has recently been held by Allport (2) that the correlation found between the Allport A-S Reaction Study and the Thurstone Neurotic Inventory was spuriously high because questions concerning behavior in similar situations appear on the two blanks. As a result of this belief, separate tests have had to be constructed for each trait. Frequently these tests have been found to be inadequate because of their low reliabilities, or because of their low validities, or because of their cumbersomeness when used in connection with other tests in the estimation of more than a single trait. Even when the tests have been acceptably valid and reliable, the specific instructions to the subjects which their use requires, instructions which are often conflicting, have caused confusion and decreased validity when more than one has been administered to a group of subjects at a single sitting. Furthermore, the very length of a battery composed of such independently developed units is so excessive that the rapport with the subjects is frequently destroyed, again causing a lowering of the validity and oftentimes precluding its use in research programs.

In searching for a method whereby the shortcomings in the present tests might be overcome, a psychological analysis of observed behavior was made which resulted in the belief that the behavior of an individual in a single situation may be symptomatic of *several* traits, in varying degrees, rather than of a single trait, as has been assumed. On the basis of this belief a new method of constructing tests for personality traits is proposed. This new method, which is referred to as the method of "differential evaluation," consists of the determination of the extent to which the response to a single question is symptomatic of each of several traits. It is designed to permit the construction of tests, or "inventories," which may be used in the simultaneous estimation of several traits, without being subject to the criticisms which have been levied against the previously constructed tests.

The central problem of the ensuing study has been to determine whether the method of differential evaluation is sound. It has been approached through the actual construction of an inventory by the proposed new method—which inventory, in turn, has been subjected to various tests of reliability, validity, and usefulness.

The test which was constructed has been entitled the Personality Inventory² and is referred to herein as the P-I test. The traits which the P-I test was designed to estimate are those which have been termed neurotic tendency, introversion-extroversion, ascendance-submission, and self-sufficiency. The first three were selected because of the widespread attention which they have received—the other because its potential value appeared to justify its inclusion. The symbols “B1-N,” “B2-S,” “B3-I,” and “B4-D” have been assigned to the separate scales of the P-I test. In these symbols the “N” refers to neurotic tendency; the “S,” to self-sufficiency; the “I,” to introversion; and the “D,” to dominance.

THE CONSTRUCTION OF THE PERSONALITY INVENTORY

In general, the method by which the test was constructed was to gather items to which responses could be readily made, to determine the diagnostic value of each item for each trait by comparing the responses made by groups of subjects composed of individuals who were extreme deviates in one of the traits, and to utilize these diagnostic values in making a separate scoring key for each trait. The detailed methods are reported in the following sections.

1. *The Sources of the Items.* Thurstone and Thurstone (15) reported the diagnostic value of each of the items used by them to measure emotional instability. Their items were adapted from the earlier lists by Woodworth (see 5), House (8), Laird (10), Freyd (6), and Allport (1). Oliver (11) compared a group of extreme extroverts with a group of extreme introverts and found that several tests, including those by Allport (1), Conklin (3), Strong (13), and Pressey (12), and also certain separate test items, differentiated significantly between his groups. Allport (1) determined the value of each item used to measure ascendance-submission. Whitman (16) used the items he had found to be most significant of intro-

²Published by the Stanford University Press, Stanford University, California.

version-extroversion in constructing his revision of Laird's C2 test. The significance of each of the items in the S-S (self-sufficiency) test was determined by the present writer. From these sources, principally, questions were adopted and added to the list of original questions which was drafted by the present writer.

The questions were carefully edited and were recast to fit the proposed make-up of the P-I test. Care was used not to include any items which had reference to the experiences of a special group only, such as college classroom experiences, or to a single sex, or which required a vocabulary beyond that possessed by high-school students.

A reliability coefficient of .85 was arbitrarily chosen as the lowest which would be acceptable for the separate scales. Knowing the extent to which the separate items were significant of more than one trait, it was roughly estimated, on the basis of the reliabilities found by Thurstone and Thurstone for their test and those found for the S-S test, both being composed of similar items, that somewhat more than 100 items would be required to meet this standard. In all, 125 items were included.

2. *The Form of the Items.* In choosing the form in which the questions were to be presented to the subjects, several factors were considered to be important. It was believed that each question should be so stated that every subject could answer it, that the method of answering should be clear and unambiguous, and that the form of the answers should permit of statistical treatment and of rapid and accurate scoring.

The form devised by Thurstone was found to meet all of these requirements when used with the *Neurotic Inventory* and with the S-S test. Consequently, it was adopted for use with the P-I test. Three optional answers precede each question; they are "Yes," "No," and "?". The subject is instructed to answer, if possible, by encircling either "Yes" or "No"—otherwise to encircle the "?". The presence of the question mark adds materially to the maintenance of rapport with the subject.

3. *The Method of Item-Evaluation.* Cowdery (4) has shown that the use of Kelley's formula for the determination of the diagnostic significance of items is a sound procedure.

Strong (14) has developed a chart which greatly facilitates the

computation of these diagnostic values. This chart was used in the computations reported in the present study.

4. *The Control of Sex Differences.* Various investigators have reported sex differences in the mean scores obtained by means of the tests used to select the criterion groups. This made it necessary to control the effect of sex in constructing the P-I test, since it was intended for use with both men and women. This was done by having an equally large number of males and females in the criterion groups which were used in determining the diagnostic significance of the various responses. In Section 5 the means by which this was accomplished are reported.

★ 5. *The Criterion Groups.* The criterion groups used in evaluating the items were composed of college students who had been shown to be extreme cases by the use of previously standardized tests. Thurstone's *Neurotic Inventory* (TN), Laird's C2 test of introversion-extroversion (C2), Allport's A-S test of ascendance-submission (A-S), and the S-S test of self-sufficiency (SS) were used to locate these extreme individuals.

The subjects were students at Stanford University, at Chico (Calif.) State College, at San Francisco State College, or at Menlo (Calif.) Junior College. Table 1 shows the total number of subjects of each sex who were tested.

TABLE 1
NUMBER OF SUBJECTS IN EACH CRITERION POPULATION

	Men	Women
SS	203	244
TN	208	205
C2	182	202
AS	200	174

The criterion groups were composed of the 50 most extreme individuals chosen equally from the two sexes. It was in this manner that the factor of sex was equalized.

6. *The Diagnostic Values of the Items.* Before using the Strong chart three dichotomies were assumed in the data for each item. This was done by assuming that all of the individuals who had encircled a given response were in one cell, and that all of the individuals who had not encircled that response were in the other cell, regardless of what response they had made. This procedure was used by

Strong in constructing his *Vocational Interest Blank*, and has been shown by him to be a reasonable procedure.

A few of the responses were found to have diagnostic values greater than 30, the highest for which the Strong chart was designed. However, none of these values were sufficiently above 30, as judged by inspection, to warrant their more accurate computation.

7. *The Choice of the Scoring Method.* In deciding which items should be retained as measures of each of the traits, several minimum standards were experimented with in order to determine what effect they would have upon the resulting reliability coefficient of the B2-S scale. The B2-S scale was used because it was the first to be prepared. In all of these schemes the items were equally weighted. The minimum standard (which an item would need to attain in order to be included) was varied from 1 to 7. The resulting reliability increased as the size of the minimum diagnostic value was decreased (that is, as the number of items included was increased) until the minimum value of 3 was used. When the items with values below 4 were included no increase in the reliability resulted. The coefficients varied from .73 to .87. In all these schemes the items were equally weighted.

In order to determine the effect upon the reliability of using a weighted scoring scheme, a condensed set of weights was computed, based upon the diagnostic values. This was done in order to make the use of the weights more feasible, the use of the diagnostic values which ranged up to and above 30 having been found to be excessively laborious. Weights were assigned to the responses on the basis of their diagnostic values in accordance with the transmutation table shown in Table 2.

When the weighted scoring method was used with all items included, a reliability coefficient of .92 was obtained.

TABLE 2

Diagnostic value	Weight
0	0
1-5	1
6-10	2
11-15	3
16-20	4
21-25	5
26-30	6
30+	7

On the basis of these coefficients the method of using all the items weighted according to their diagnostic values seems clearly to be the most satisfactory and is the method which was finally adopted.

THE EXTENT OF SEX DIFFERENCES

That definite sex differences exist in the average scores on each of the scales is shown in Table 3. In B1-N the females score higher

TABLE 3
SEX DIFFERENCES IN MEAN SCORES
[A plus (+) sign indicates that the males have the higher mean score]

		Diff.	$\sigma_{diff.}$	$\frac{Diff.}{\sigma_{diff.}}$
B1-N	H. S.	-37.3	9.5	3.94
	College	-13.4	6.1	2.21
	Adult	-37.1	11.0	3.37
B2-S	H. S.	+16.7	6.6	2.55
	College	+18.0	4.1	4.41
	Adult	+22.0	7.2	3.04
B3-I	H. S.	-20.7	5.8	3.55
	College	- 6.6	3.6	1.82
	Adult	-13.6	6.4	2.11
B4-D	H. S.	+24.9	7.4	3.38
	College	+13.2	4.8	2.74
	Adult	+33.5	8.4	3.97

than the males, indicating a greater tendency toward a neurotic condition. The critical ratios of the three groups vary from 2.21 to 3.94, the difference between the college men and women being somewhat smaller than for the other two groups. The ratios of the differences on the B2-S scale vary from 2.55 to 4.41 and indicate that the males of each group possess a greater degree of self-sufficiency than do the females. In B3-I the ratios vary from 1.82 to 3.55, showing the females to be more introverted than the males. The smallest difference is again found between the college students. The mean scores on the B4-D scale indicate that the males are more dominant than the females, the ratios varying from 2.74 to 3.97. The college students are again more nearly alike than are the other groups.

The finding that on three out of four of the scales the sex differ-

ences between college students are smaller than for the other two groups is not unexpected, since the college students of both sexes are selected individuals who have had very similar training.

THE RELIABILITIES OF THE SEPARATE SCALES

Coefficients of reliability were computed for each of the norm groups by correlating the scores made on the first half of the test with the scores made on the second half and applying the Spearman-Brown prophecy formula to estimate the total test reliability. None of the subjects used in computing the diagnostic values of the items were included in the groups used to determine the scale reliabilities. In computing these coefficients the sexes were treated separately.

Table 4 shows the reliability found by the split-half method for each of the groups of subjects.

TABLE 4
RELIABILITIES FOR TOTAL NORM GROUP POPULATIONS

	Average	Male			Female		
		H. S.	College	Adult	H. S.	College	Adult
B1-N	.87	.88	.90	.89	.85	.84	.86
B2-S	.83	.78	.84	.83	.85	.84	.84
B3-I	.85	.87	.88	.91	.82	.83	.80
B4-D	.88	.87	.88	.88	.87	.89	.91

THE RELIABILITIES OF SINGLE SCORES

In determining the relative standing in a total distribution of an individual who has been tested by the P-I test it is essential that reference be made to the standard error of a single score. By definition, this value represents the extent to which single scores may be expected to vary as a result of factors affecting the scores which the test was not designed to estimate.

The standard errors of the single scores on each of the scales as computed for each of the populations are shown in Table 5. In computing these values it was assumed that the obtained scores were the best available estimates of the "true" scores which the subjects would have earned had they been tested an infinite number of times. Kelley (9) shows that the formula for the standard error of a single score under these conditions is

$$\sigma_{1. \infty} = \sigma_{dist.} \sqrt{1 - r_{11}}$$

in which $\sigma_{1.\infty}$ is the standard error of a single score; $\sigma_{dist.}$, the standard deviation of the total distribution; and r_{11} , the reliability of the instrument upon which the scores were obtained. This formula was used in computing the values shown in Table 5. A casual

TABLE 5
STANDARD ERRORS OF SINGLE SCORES EXPRESSED AS RAW SCORES

	H. S.	Male College	Adult	H. S.	Female College	Adult
B1-N	17.67	18.21	16.93	20.75	21.49	20.40
B2-S	15.98	14.77	14.51	14.53	14.81	15.05
B3-I	11.36	12.20	10.02	13.75	12.81	13.98
B4-D	13.72	15.49	14.22	14.93	14.01	13.55

inspection of this table is likely to be misleading, since it appears as though the scores on the B1-N scale were considerably less reliable than the scores on the other scales, while such is not the case. These values must be interpreted in relation to the standard deviations of the total distributions upon which they are based. Since the B1-N scores are distributed more widely than are the scores on the other scales, the apparent unreliability of the single scores on this scale is an artifact. In order to compare the standard errors of the scores on the several scales, it is necessary to equate the standard deviations of the distributions upon which they are based. This has been done by dividing each value by the standard deviation of the distribution upon which it is based;³ in effect, each distribution is given, thereby, a standard deviation of one.

The standard errors of the single scores based on distributions having equal standard deviations are shown in Table 6. It now be-

TABLE 6
STANDARD ERRORS OF SINGLE SCORES EXPRESSED AS STANDARD SCORES

	H. S.	Male College	Adult	H. S.	Female College	Adult
B1-N	.35	.33	.32	.39	.40	.38
B2-S	.47	.41	.41	.39	.39	.40
B3-I	.36	.30	.35	.42	.41	.44
B4-D	.36	.34	.34	.35	.33	.31
Mean	.39	.35	.35	.39	.39	.38

³The formula for the standard error of a single score expressed as a standard score thus becomes:

$$\sigma_{z.\infty} = \sqrt{1-r_{11}}$$

comes apparent that the expected variation in single scores differs only slightly for the several scales, and is least on the B4-D and greatest on the B2-S.

Although the diagnostic values of the items were determined on criterion groups composed of college students, it is apparent from Table 6 that the scores obtained on high-school students and adults are as reliable as are those obtained on college students. In seven instances out of sixteen the standard errors of the high-school students' or adults' scores are the same as, or smaller than, those for the corresponding college group.

THE VALIDITY OF THE SCALES

It is a well-known principle in mental measurement that, when a series of tests or items, each possessing diagnostic value, are combined, the resulting scale possesses a degree of diagnostic value greater than that of the subtests or items taken singly. Since each of the items which were chosen to be scored for the several scales of the P-I test differentiated between the criterion groups, it was anticipated that each scale would yield scores which were highly correlated with the scores obtained on the tests used to select the criterion groups. The extent to which the scales were found to correlate with these previously validated tests is shown in Table 7, the

TABLE 7
CORRELATION WITH OTHER PERSONALITY TRAIT TESTS, STANFORD ELEMENTARY PSYCHOLOGY STUDENTS

	Fall-quarter class			Winter-quarter class		
	N	Uncorr.	Corr.	N	Uncorr.	Corr.
B1-N+TN	70	.94	1.00	32	.91	.99
B2-S+SS	70	.89	1.00	46	.86	1.00
B3-I+C2	70	.76	.99	44	.69	.92
B4-D+AS (men)	55	.81	1.00	29	.67	.84
B4-D+AS (women)	—	—	—	55	.82	.99

subjects being students in two psychology classes at Stanford University. In this table the symbol "TN" refers to the Thurstone Neurotic Inventory; "C2," to the Laird C2 introversion-extroversion test; "SS," to the S-S test; and "AS," to the Allport Test of Ascendance-Submission.

The fall-quarter class was part of the group from which the criterion groups were selected, and upon which the weights were

determined. The winter-quarter class was not included in the original group, therefore the coefficients reported for them are probably a better indication of the true degree of correspondence which exists between the various tests than are those obtained on the fall-quarter class. Both the raw coefficients and the same coefficients after they have been corrected for attenuation⁴ are reported.

It is evident that a high degree of correlation exists between the B1-N scale and the Thurstone test of neurotic tendency, between the B2-S scale and the S-S test of self-sufficiency, between the B3-I scale and the Laird test of introversion-extroversion, and between the B4-D scale and the Allport test of ascendance-submission. An inspection of the table shows that practically all of the variation found between the scores can be accounted for by the fact that the devices on which the scores were obtained were not perfectly reliable, since the corrected coefficients approximate unity.

Probably the most immediate and most satisfactory method of determining the characteristics of the individuals who make extreme scores on the various scales is to turn to the items themselves. The ten items on each scale which were found to possess the greatest diagnostic value are shown in Tables 8 to 11, together with the answers which are most frequently given by the high-scoring criterion groups. Thus, in Table 8 are presented the ten items which are most significant in the estimation of neurotic tendency—the indicated answers are those which carry weight for instability. The diagnostic values are also shown, indicating the relative significance of each item. The contrary answers are indicative of a stable condition and carry negative weights.⁵

The type characteristics of the individuals who earn extreme scores on each of the scales can be readily determined from these tables. It must be remembered, however, that these questions represent only part of the total list, and that no single individual has

⁴The formula used in making these corrections is that given by Kelley (9) as:

$$r_{\infty\infty} = \frac{r_{12}}{\sqrt{r_{11}} \sqrt{r_{22}}}$$

⁵The diagnostic values for the indicated and contrary answers vary somewhat due to the presence of the question mark as a possible response.

TABLE 8
MOST HEAVILY WEIGHTED ITEMS ON B1-N SCALE

Neurotic response	Diagnostic value of indicated response	Diagnostic value of contrary response	Item
Yes	30+	-30+	Do you often feel just miserable?
Yes	30+	-30+	Are your feelings easily hurt?
Yes	30+	-30+	Does some particularly useless thought keep coming into your mind to bother you?
Yes	30+	-30+	Do your feelings alternate between happiness and sadness without apparent reason?
Yes	30	-30+	Are you troubled with shyness?
Yes	25	-30+	Do you worry too long over humiliating experiences?
Yes	30	-26	Are you troubled with feelings of inferiority?
Yes	30	-22	Do you worry over possible misfortunes?
No	21	-26	Can you stand criticism without feeling hurt?
Yes	20	-22	Do you often feel lonesome when you are with other people?

ever answered all of the questions in any total list in accordance with a single tendency.

The factors which lie behind the giving of these or other answers are still largely a matter of conjecture. Assuming that close rapport is had with the subject and that the subject has the knowledge and ability to make accurate reports concerning himself, it probably may be safely assumed that the answers given are indicative of his true behavior and subjective experiences. All scores should be interpreted with due regard for the possibility that either or both of these assumptions may not be sound in the case of a given subject. The observations of the psychiatrists concerning the mechanisms of compensation, rationalization, and projection would indicate that many subjects, particularly those who are borderline cases, are unable to report adequately upon the motives which lie behind their behavior, and even, under certain circumstances, are unable to report adequately upon their behavior and experiences. The extent to which these mechanisms are influencing the scores on the P-I scales cannot yet be adequately determined. However, the significant

TABLE 9
MOST HEAVILY WEIGHTED ITEMS ON B2-S SCALE

Self-sufficient response	Diagnostic value of indicated response	Diagnostic value of contrary response	Item
Yes	30+	—30+	Do you usually enjoy spending an evening alone?
No	30	—24	Do you usually prefer to work with others?
Yes	27	—28	Do you prefer to make hurried decisions alone?
Yes	27	—21	Do you think you could become so absorbed in creative work that you would not notice a lack of intimate friends?
Yes	19	—22	Do you usually face your troubles alone without seeking help?
No	18	—20	Do you find conversation more helpful in formulating your ideas than reading?
Yes	18	—20	Can you usually understand a problem better by studying it out alone than by discussing it with others?
No	15	—20	Do you like to be with people a great deal?
Yes	19	—15	Are you willing to take a chance alone in a situation of doubtful outcome?
No	13	—19	Do you like to get many views from others before making an important decision?

results obtained through the use of earlier tests of personality traits indicate that such factors are not operating to vitiate the validity of the tests to any considerable extent. Pending further investigations, it probably may be safely assumed that the same is true of the P-I test.

Further light is thrown on the nature of the traits being estimated by the P-I scales by the amount and direction of correlation which exists between the various scales. Table 12 presents the mean coefficients found when the scales were applied to a variety of groups, some being composed of a single sex, others of both sexes combined. From the table it is evident that the extent to which the traits are independent varies markedly for the several traits.

TABLE 10
MOST HEAVILY WEIGHTED ITEMS ON THE B3-I SCALE

Introvert response	Diagnostic value of indicated response	Diagnostic value of contrary response	Item
Yes	27	-30+	Are your feelings easily hurt?
Yes	25	-18	Do you experience many pleasant or unpleasant moods?
Yes	22	-18	Do your feelings alternate between happiness and sadness without apparent reason?
Yes	17	-15	Do you worry too long over humiliating experiences?
Yes	15	-16	Do you day-dream frequently?
No	15	-11	Can you stand criticism without feeling hurt?
Yes	15	-10	Do you often feel just miserable?
Yes	14	-14	Do you consider yourself a rather nervous person?
Yes	14	-12	Do you blush very often?
Yes	14	-11	Do you worry over possible misfortunes?

TABLE 11
MOST HEAVILY WEIGHTED ITEMS ON THE B4-D SCALE

Dominant response	Diagnostic value of indicated response	Diagnostic value of contrary response	Item
No	27	-19	Are you troubled with shyness?
No	24	-23	Do you have difficulty in starting a conversation with a stranger?
No	24	-20	Do you lack self-confidence?
Yes	19	-18	Do you take the responsibility for introducing people at a party?
Yes	18	-18	Have you ever organized any clubs, teams, or other groups on your own initiative?
No	18	-18	Are you troubled with feelings of inferiority?
Yes	16	-18	Do you ever take the lead to enliven a dull party?
No	18	-16	Do you keep in the background at social functions?
No	18	-15	At a reception or tea do you feel reluctant to meet the most important person present?
No	18	-13	Would you feel very self-conscious if you had to volunteer an idea to start a discussion among a group of people?

TABLE 12
AVERAGE CORRELATION BETWEEN THE SEPARATE SCALES

	B1-N	B2-S	B3-I
B2-S	— .49		
B3-I	.96	— .38	
B4-D	— .83	.58	— .72

Two of the correlations found between the scales are worthy of particular mention; they are the negative correlation between B2-S and B3-I, and the high positive correlation between B1-N and B3-I. Each of these involves the B3-I scale, and serves to throw additional light on the nature of introversion-extroversion.

According to Freyd's (6) summary of the definitions of introversion which have been proposed by a number of theoretical writers, two characteristics mark the introvert—exaggerated thought processes in relation to directly observable social behavior, and a tendency to withdraw from social contacts. It has been suggested by other writers since that time that these two characteristics may not be positively correlated; for example, Woodworth (17) writes: "In my own opinion, indeed, there are at least two variables lumped together in the introvert-extrovert scales as at present used, and in Jung's original formulation as well. One variable would be the tendency to immediate overt action as opposed to the tendency to deliberate, ruminate, and perhaps daydream. The other variable would be the interest in other people and in social activity. The two variables seem to me probably independent of each other."

The results of the present investigation support the suggestion made by Woodworth and controvert the definition given by Freyd. Turning to Table 10, which presents the items that characterize the individuals who earn high scores on the B3-I scale, it is apparent that such individuals are given to autistic thinking, introspection, and worrying—that is, they show "exaggerated thought processes in relation to directly observable social behavior." On the other hand, Table 9 shows that individuals who are contented when by themselves, who can substitute creative work for friendships, and who do not like to be with people a great deal—that is, those individuals who show a "tendency to withdraw from social contacts"—earn high scores on the B2-S scale, which correlates negatively with the B3-I. This negative correlation between B2-S and B3-I shows

clearly that the two characteristics which Freyd proposes are opposed tendencies.

On the basis of the earlier definitions, either the B2-S scale or the B3-I scale might be termed an introversion-extroversion test with equal authority despite the fact that an individual who scores "introverted" on one would tend to score "extroverted" on the other. However, the B3-I scale has been termed the introversion-extroversion scale because in its construction the Laird C2 test of introversion-extroversion was used in selecting the criterion groups.

This negative correlation between B2-S and B3-I also helps explain in part why the true relationship between neurotic tendency and introversion has not been apparent heretofore. Hoitsma (7) reported a coefficient of only .49 between the Laird B1 test of psychoneurosis and the Laird C1 test of introversion. Opposed to this, an extremely high degree of correlation has been found between the B1-N scale and the B3-I scale. This latter finding supports Conklin's (3) contention that the previously devised tests, other than the one devised by himself, measure the abnormal manifestations of introversion-extroversion only. Apparently, the failure of the evidence furnished by the previously devised tests to support Conklin's contention has been due to the inadequacies of the tests themselves. On the basis of the evidence furnished by the P-I test, it seems probable that neurotic tendency and introversion (in the B3-I sense) are names given to a single trait whose real nature has been obscured by the inadequacies of the tests by which it has been estimated.

Based upon the evidence furnished by the correlations found between the P-I scales and other tests of personality traits, by the correlations with ratings on various aspects of personality, by the weights of the various items, and by the correlations between the various scales, descriptions of the individuals who earn extreme scores on each of the scales may now be essayed. Such descriptions represent the subjective evaluations of the various criteria by the present writer and must be so interpreted. The descriptions follow.

High B1-N. The individual who scores high on the B1-N scale shows a tendency toward a neurotic condition. Such an individual often feels miserable, is sensitive to blame, and is troubled by useless thoughts, by shyness, and by feelings of inferiority. He feels shut off from other people, he frequently day-dreams, and worries both

over things that have happened and over things that may happen.

Low B1-N. The individual who scores low on the B1-N scale is an emotionally stable person. He is rarely troubled by moods, by worries, or by the criticisms of others. He is self-confident, and is a doer rather than a day-dreamer.

High B2-S. The individual who scores high on the B2-S scale is a self-sufficient person. He is able to be contented when by himself. He prefers to work alone and depends upon his own judgment in reaching decisions and in formulating plans.

Low B2-S. The individual who scores low on the B2-S scale is dependent upon others for his enjoyments. He likes to be with other people a great deal, and prefers company both while working and during leisure hours. He prefers to talk problems over with others and to receive advice before reaching decisions.

High B3-I. The individual who scores high on the B3-I scale is introverted in the sense that he is introspective and is given to autistic thinking. He shows the symptoms of a neurotic condition which are typical of those individuals who score high on the B1-N scale.

Low B3-I. The individual who scores low on the B3-I scale is extroverted in the sense that he rarely substitutes day-dreaming for action. He is emotionally stable and possesses the characteristics of those individuals who score low on the B1-N scale.

High B4-D. The individual who scores high on the B4-D scale is dominant in face-to-face situations with his equals. He is self-confident and aggressive, and readily assumes a position in the foreground at social functions. He converses readily with strangers or with prominent people and suffers no feelings of inferiority when doing so.

Low B4-D. The individual who scores low on the B4-D scale is submissive in face-to-face situations with his equals. He lacks self-confidence, keeps in the background at social functions, and rarely takes the initiative in directing people or activities. He experiences feelings of inferiority and is reluctant to meet important personages.

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The Pennsylvania State College
State College, Pennsylvania

LA THÉORIE ET LA CONSTRUCTION DE L'INVENTAIRE DE PERSONNALITÉ

(Résumé)

On a développé l'Inventaire de Personnalité pour tester la théorie qu'un seul de exemple de comportement, soit dans une situation sociale immédiate soit comme réponse à une question sur le comportement usuelle, peut être symptomatique de plus d'un trait de personnalité. Le succès de l'Inventaire de Personnalité, jugé par sa cohérence et sa validité, montre le solidité de

cette théorie. L'Inventaire se compose de 125 questions. On a évalué les réponses à ces questions selon quatre méthodes différentes au moyen de quatre échelles différentes d'évaluation construites selon la méthode de "l'évaluation différentielle." On s'est servi de la formule Kelley-Strong pour déterminer les poids de l'évaluation. Les traits considérés sont la tendance névrosique, la suffisance, l'introversion-extroversion, et la dominance-soumission.

La cohérence moyenne "split-half" des échelles varie de 0,83 à 0,88 quand on la compute pour les groupes d'étudiants secondaires ou d'étudiants universitaires ou d'adultes. On rapporte aussi des erreurs étalon des résultats individuels. Les échelles de l'I-P semblent doubler, dans les limites des erreurs atténuantes, les tests auparavant séparément standardisés destinés à mesurer les mêmes traits. Les quatre échelles donnent une corrélation mutuelle de 0,38 à 0,96. La corrélation très élevée entre la tendance névrosique et l'introversion rend non justifié l'emploi de plus de trois échelles. On discute la signification de ces corrélations mutuelles sur la nature des traits.

On donne de courtes descriptions des caractéristiques des individus qui ont des résultats très élevés sur chacune des échelles.

BERNREUTER

DIE THEORIE UND KONSTRUKTION EINES SCHEMAS FÜR DIE SCHÄTZUNG DER PERSÖNLICHKEIT

(Referat)

Das Schema für die Schätzung der Persönlichkeit wurde entwickelt, um die Theorie zu prüfen, wonach eine einzelne Lebensäußerung, ob in unmittelbaren gesellschaftlichen Situationen, oder als Antwort auf eine Frage über das übliche Verhalten, symptomatisch für mehr als einen Persönlichkeitszug sei. Der Erfolg eines solchen Schemas, der nach dessen Zuverlässigkeit und Gültigkeit beurteilt wird, beweist die Richtigkeit dieser Theorie. Das Schema besteht aus 125 Fragen. Die Antworten auf die Fragen werden auf vier Arten, nach vier verschiedenen Skalen geschätzt, die nach der Methode der "differenzialen Schätzung" aufgestellt wurden. Die Kelley-Strong Formel diente dazu, die Schätzungsgewichte (scoring weights) zu bestimmen. Die berücksichtigten Merkmale sind neurotische Tendenzen, Selbstzufriedenheit, Introversion-Extraversion, und Herrschaft-Untertänigkeit.

Der durchschnittliche halbierte Zuverlässigkeit-Koeffizient (split-half reliability) der Schemen variiert von 0,83 bis 0,88, wenn diese an Mittelschülern, oder Collegestudenten, oder Erwachsenen gefunden wurden. Man erstattet Bericht über die konstanten Fehler einzelner Schätzungsgrößen. Die Schemen für die Schätzung der Persönlichkeit scheinen, innerhalb der Grenzen der sich verringenden Fehler, die vorher für sich normierten Tests zu wiederholen, die zur Messung derselben Züge aufgestellt wurden.

Die Korrelationskoeffizienten der vier Schemen betragen 0,38 bis 0,96. Die hohe Korrelation zwischen neurotischen Tendenzen und Introversion rechtfertigt den Gebrauch von mehr als drei Schemen nicht. Man diskutiert die Bedeutung dieser Interkorrelationen mit Bezug auf die Natur der Züge.

Man beschreibt ferner kurz die Merkmale der Individuen, die bei der Anwendung eines jeden Schemas extreme Schätzungswerte aufweisen.

BERNREUTER

TEMPERAMENT AND DIRECTION OF ACHIEVEMENT*¹

From the Department of Psychology, University of Minnesota

KEITH SWARD

Even brilliant literature and conversation have certain limitations in their treatment of temperament. Dr. Johnson is supposed to have remarked, concerning his own distinguished pastime, "In conversation you never get a system." Personality studies in the quantitative vein, including the present study, become checks and reference points in a field to which no special approach can make exclusive claims.

STATEMENT OF THE PROBLEM

The present enquiry is a study of adult accomplishment from the standpoint of temperament. A group of college leaders is compared with a control group with respect to intellectual traits, social background, and motivation.

Distinctive features of the study seem to be: (1) The use of living subjects. Biographical studies have dominated the field of genius and achievement. (2) The utilization of quantitative measures of temperament. (3) A consideration of introversion and the inferiority attitude (Heidbreder scales) in relation to accomplishment.

SELECTION OF SUBJECTS

Campus leaders at the University of Minnesota in the winter and spring of 1927 composed the achievement group. Extra-curricular prominence was gauged by a "point system" in force at the University (1). Nearly every campus position of importance was canvassed. The distribution of subjects by sex and type of activity² is reported in later tabulations.

*Accepted for publication by Carl Murchison of the Editorial Board and received in the Editorial Office, August 14, 1932.

¹This report is taken from sections of a Doctor's dissertation completed at the University of Minnesota in 1929. Grateful acknowledgment is due Dr. Charles Bird who collaborated in setting the problem.

²The following activities were embraced:

1. *Publications*: class A positions on the *Minnesota Daily*, *Ski-U-Mah*

Non-participants in student affairs were selected at random from alphabetical lists in the *University Address Book*. The control group was matched with campus leaders for sex, age, and college. Particulars common to both groups were, therefore, (1) sex distribution (59 men, 66 women), (2) year of college (80% juniors and seniors), (3) college affiliation (86% of the subjects concentrated in Liberal Arts, Business, and Education), and (4) continued residence in the University from the freshman year on. Native-born Nordic stock prevailed almost 100%.

CONDITIONS OF TESTING

Each subject was interviewed privately for the purpose of getting rapport and administering a Family History Blank. Three copies of the Heibreder scale were provided at the time, with instructions to return a self rating and the ratings of two associates. The scales were returned in separate, self-addressed, stamped envelopes.

Eighteen in the control group, over and above the final 125, and four leaders, refused to cooperate for one reason or another. The leaders were approached first.

On the whole, the purpose of the study was disguised. In some cases, a more direct statement of the problem was given. This occurred oftener with leaders. The effect of this source of error, though probably slight, was unchecked.

STATEMENT OF RESULTS

1. *Social Origins of Leaders and Controls*. Prominence in college affairs is clearly associated with social class. In Table 1, the fathers' occupations are grouped according to the Goodenough scale (6). Several of the reports were too ambiguous to classify.

(humor magazine), *Gopher* (yearbook), and *Techno-Log* (College of Engineering publication).

2. *Dramatics*: playing a leading rôle in a major campus production. A list of names was prepared by Mr. Edward Staadt, director of dramatics.

3. *Debate*: Intercollegiate debating, offered as an advanced course in the Speech Department, admission determined by competitive tryouts and elementary course work.

4. *Politics*: Membership on the All-University Council, and all-class presidencies.

5. *Women's Organizations*: board membership on the University Y. W. C. A., the Women's Athletic Association, the Women's Self-Government Association; and presidencies of the four class societies.

TABLE 1
DISTRIBUTION OF CASES BY OCCUPATIONAL GROUPS

Classes	Fathers of leaders		Fathers of controls		Percentage of total adult male population of Minneapolis
	N	%	N	%	
I. Professional	36	30.0	27	22.3	5.4
II. Manager, large business	28	23.4	8	6.6	6.3
III. Technical-clerical	52	43.3	61	50.4	37.3
IV. Skilled labor	4	3.3	22	18.2	24.3
V. Semi-skilled labor	—	0.0	—	0.0	14.9
VI. Unskilled labor	—	0.0	3	2.5	11.8
Total	120	100.0	121	100.0	100.0

The leaders come from the upper social classes in larger proportions than do members of the unselected group. Over half of the fathers of the leader group, and 29% of the control fathers, are in the professions or large businesses.

At the lower extreme, Classes IV to VI contribute over 20% of the control fathers and only 3% of the fathers of prominent students.

Income of parents. The concentration of leaders in the managerial and professional classes is paralleled by greater wealth. Ninety leaders and 101 controls estimated the annual income of the father. The reliability of these reports is unknown, and nearly one-fifth of the subjects were unable or unwilling to disclose the information. The data on incomes, given in Table 2, are based on the cases for which the information was available.

Families of near-wealth are considerably more frequent among prominent students. About 8% of the leaders and 2% of the con-

TABLE 2
PARENTAL INCOMES OF LEADERS AND CONTROLS

	Leaders (N=90)	Control group (N=101)	<i>D./P.E._D</i>
Median	\$ 4,250	\$2,940	1.27
Mean	\$ 6,990	\$4,030	3.61
S.D.	\$10,820*	\$4,490	

*The value is inflated by the inclusion of three incomes in the neighborhood of \$75,000.

trols reported incomes of \$12,500 or higher. Salaries of \$7500 and up were given by 24% of the leaders and 8% of the non-leaders.

In the lower ranges, incomes of less than \$2000 were reported by 24% of the control families and 12% of the leaders. Eight per cent of the non-leaders and 2% of the leaders had parental incomes below \$1500 a year.

Interpretation of data on social status. Participation in campus affairs is apparently an economic luxury. One aspect is the amount of time available for extra-curricular demands.³

The social background of the leaders⁴ is probably reflected in the results on college ability and is possibly related to certain personality data.⁵

Selection may force participation for leaders because they come from social classes which approve the conventional campus career, or because of larger membership in social fraternities which promote campus enterprise by connections and the pressure of emulation. The latter point might act to minimize any difference between leaders and controls, or else might be a go-between which is correlated with social class and other points and tends to get an extra-curricular career of some sort started.

2. *Results on College Aptitude.* The Minnesota College Entrance Examination was used as an available criterion of intellect. Re-test reliability of the scale is between .80 and .90.⁶ Correlations with college grades are uniformly close to .50.

That abler students fill the important campus posts is evident in Table 3.

The leaders have a marked superiority in college ability over non-participating students. The difference between means is statisti-

³Thirty per cent of the leaders and 37% of the controls were gainfully employed outside of school at the time of the study. The estimated number of hours of weekly employment for the total groups was:

Leaders N, 125; Mean, 4.53; S.D., 10.19

Controls N, 125; Mean, 7.50; S.D., 12.77

For those actually employed:

Leaders N, 37; Mean, 14.43; S.D., 13.72

Controls N, 46; Mean, 20.39; S.D., 13.44

⁴Further indicated by the education of the parents: Less than a high-school education was reported for 40% of the fathers and 35% of the mothers in the control group, and for 28% of the fathers and 19% of the mothers in the leader group.

⁵See summary and conclusions.

⁶Unpublished data, Department of Psychology, University of Minnesota.

TABLE 3
PERCENTILE RATINGS ON THE MINNESOTA COLLEGE ABILITY TEST

	N	Campus leaders		Control group		Diff.	P.E. _D	D/P.E. _D
		Av.	S.D.	P.E. _{Av.}	N	Av.	S.D.	P.E. _{Av.}
Men	54	75.3	23.4	2.57	53	58.0	29.0	2.69
Women	60	70.2	26.8	2.33	62	60.5	30.1	2.58
Total	114*	71.8	25.7	1.62	115*	59.2	29.6	1.86
								12.60
								2.47
								5.10

*The entrance records of 11 leaders and 10 members of the control group were missing from the files of the Psychology Department.

cally significant for men ($D/P.E._D = 4.65$), though the difference is not completely reliable for women ($D/P.E._D = 2.79$). The percentage of leaders who reach or exceed the control medians in respective sex groups is as follows: men, 72%; women, 66%; and sexes combined, 71%.

"Intelligence" is related to the type of activity in Table 4.

TABLE 4
APTITUDE (PERCENTILE) RATINGS OF LEADERS IN DIFFERENT EXTRA-CURRICULAR ACTIVITIES

Field of activity	No. of cases	Av.	S.D.
Debate	20	81.0	19.4
Publications	34*	78.7	20.8
Dramatics	32*	68.5	26.6
Politics	23*	67.7	24.8
Women's organizations	43	66.6	26.8
Main leader group	114	71.8	25.7
Control group	115	59.2	29.6

*Additional subjects were recruited in three subgroups by including students who had participated in activities previous to the time of the study. Exactly the same criteria of selection were imposed. It will be noted, by a comparison with later tables, that the N's of three subgroups were slightly increased: publications, 26 to 34; dramatics, 18 to 32; and politics, 14 to 23.

Debate and men in publications rank well at the top in percentile ratings. Their means are 10 to 15 points higher than the ratings of other subgroups. Also, by Pearson's coefficient of variation, editors and debaters are about 70% as variable in ability as other subgroups.

Leaders in politics, dramatics, and women's activities are indistinguishable in mean ability.

3. *Scholarship of Leaders and Controls.* In the main, scholarship records cover a four-year period of undergraduate study at the University of Minnesota.⁷ The other data are based on a three-year interval. For several students the sample of college work is confined to one year.

The standings, listed in Table 5, are expressed as Honor Point Ratios.⁸

⁷Grades were checked at the Registrar's office in June, 1929, two years after the groups were first approached.

⁸*Definition of the Honor Point Ratio:* a ratio of honor points to credit hours attempted. Honor points are weighted according to the grade re-

TABLE 5
HONOR POINT RATIOS OF LEADERS AND CONTROLS

	No. of cases	Leaders		Controls		Diff.	P.E. _D	D/P.E. _D
		Av.	S.D.	Av.	S.D.			
Men	59	1.45	.59	1.2	.502	.25	.068	3.68
Women	66	1.71	.45	1.45	.44	.26	.05	5.2
Combined	125	1.59	.54	1.38	.478	.21	.04	5.25

Prominent students excel non-leaders in scholarship, as one would expect from the intelligence ratings. The difference for women is statistically reliable ($D/P.E._D = 5.2$), and the ratio for men is just short of adequate ($D/P.E._D = 3.68$), though overlapping is substantially the same. For men and women, respectively, 61% and 66% of the leaders reach or exceed the control medians.

Obviously, the campus leaders far outdistance undergraduates in general. Both groups in this study are highly selected academically.⁹

Eligibility standards¹⁰ may weight the appearance of ability in the prominent group, if unrestricted competition would not have given the same distribution of ability. The competence of the leaders at least implies a surplus of ability over and above the routine demands of school work.

Grades are analyzed according to the field of leadership in Table 6. Debaters stand first in scholarship with close to a B average. This group ranked at the top in college ability. Men in publications fall below expectations. While the group is as able as debaters, their scholarship is next to the lowest of the subgroups. The time

ceived, A, B, C, D, and F, carrying, respectively, 3, 2, 1, 0 and — 1 honor points per credit hour carried. The possible range in H. P. R. is, therefore, from —1, in case a student fails in all work carried, to +3, in case a student does "A" work in all of his courses.

⁹R. M. West (16), Registrar, has prepared the following statistics on a single freshman class at the University of Minnesota: Less than one-half of the class of 1630 freshmen, who matriculated in 1920, survived the next four years, most of the elimination taking effect during the first two years. The group which cancelled, 56.4%, had an H. P. R. of 0.16. The four-year average of the entire class ($N = 1630$) was 0.59.

¹⁰University authorities require a D average for participation in activities. However, no person in either group had an average as low as D. For women participants, a student organization enforces a C average. Nine control women and one prominent woman had a C-minus standing.

TABLE 6
HONOR POINT RATIOS OF LEADERS IN VARIOUS ACTIVITIES

Field of achievement	No. of cases	Av.	S.D.
Debate	21	1.87	.49
Women's organizations	46	1.68	.44
Dramatics	18	1.61	.59
Publications	26	1.46	.58
Politics	14	1.14	.30
All leaders	125	1.59	.54
Control group	125	1.38	.48

requirements of positions in this field, aside from motivation, may defeat strictly academic endeavor.

Leaders in women's activities, the lowest subgroup in ability by a slight margin, are second in scholarship. This discrepancy probably arises from (1) the fact that many positions in this field are sinecures, (2) higher eligibility requirements, and (3) sex differences in motivation.

Campus politicians are at the bottom in H. P. R. Their mean lies .24 points below the control mean and .73 points below the average of debaters.

Leaders and non-participants in activities are alike in school drive, judging from the correlation between college ability and grades. The coefficients follow in Table 7.

TABLE 7
CORRELATION BETWEEN GRADES AND COLLEGE APTITUDE SCORES

	Campus leaders			Control group		
	N	r	P.E. _r	N	r	P.E. _r
Men	54	+ .45	± .07	53	+ .49	± .07
Women	60	+ .47	± .07	62	+ .47	± .07

The scholastic superiority of the prominent group is apparently due to their original ability, not to greater motivation.

4. *Results on Introversion.* Three sets of ratings were obtained on two temperament scales. Each subject furnished a self rating and ratings from two associates. The conditions of the rating are described in a previous section.

Introversion (Heidbreder scale) is estimated by one's reaction

to 33 items which are supposed to constitute a unitary trait.¹¹ The scale is internally consistent (8). It discriminates between dementia praecox and manic-depressive patients (3). Ratings are too independent of preferences to be explained away as wish-fulfillments (11). The device differentiates control subjects from Roman Catholic divinity students (14).

Split-half r 's ranged from .64 to .82 with a median of .69 for various sets of data in the present study. Raised by the Spearman-Brown formula, the coefficients ranged from .78 to .90 with the median at .82. A re-test of 80 college students after an interval of 1 1/2 to 3 1/2 years gave a reliability of .65.

The scoring key weights each step on the five-point scale (— — — 0 + ++) at its face value. As only *introvert* traits are listed, positive scores indicate introversion; and negative scores, extraversion.

a. Introversion scores of leaders and controls as total groups. Table 8 presents the data on introversion for the total groups. It will be noted that every measure of central tendency lies in the extravert, or negative, range of the scale.

Prominent women considered themselves more extraverted (Diff.

¹¹*Note on introversion:* The concept of introversion as a successfully measured entity is not generally accepted. The critiques culminating in Goodwin Watson's pronouncement that "Introversion-extraversion is slipping rapidly into disrepute" (15, p. 168) center around (1) the evidence for specificity, chiefly Newcomb's (13) exposé of the "trait" as a *behavior* unit and a general halo around the doctrine of specificity, owing perhaps to the May and Hartshorne studies of honesty; and (2) the fact that independent scales of introversion have intercorrelated disappointingly (12, 2).

Obviously, there is a need of continued refinement in scale construction, but a number of points justify the present scale as an available research tool: (1) The device is sufficiently reliable for group analysis. (2) Tests of internal consistency indicate that the traits hang together as a psychological unit. It may be that, although there is no external behavior pattern, we *think of others* as consistent personalities (Newcomb), and we *think of ourselves* as somewhat stable. The paradox of carrying around James's "average feeling tone" though the behavioristic facts do not warrant the subjective facts! (3) The scale seems to work. The studies cited and the present paper have produced positive results. Here the reasoning becomes circular: Assuming the scale, we draw conclusions to explain the phenomena under consideration; or, assuming the anticipations of each of the studies, we infer that the scale works. Yet the questionnaire appears to have a certain sort of validity. (4) Self ratings are not entirely vitiated by preferences. (5) Studies in social psychology are just what are needed to test out the possibilities of questionnaire technique.

TABLE 8
INTROVERSION SCORES OF MAIN EXPERIMENTAL GROUPS

	N	Mean	Leaders S.D.	P.E. _M	Mean	Controls S.D.	P.E. _M
Self ratings:							
Men	59	— 5.45*	13.45	1.18	—7.50	13.85	1.22
Women	66	—11.90	14.60	1.21	—4.00	21.40	1.78
Both sexes	125	— 8.07	14.96	0.90	—5.06	18.25	1.10
Associates' ratings (2 sets for each case)†							
Men	59	— 9.30	12.00	1.05	—8.00	12.20	1.07
Women	66	—14.90	11.65	0.96	—4.90	16.00	1.33
Both sexes	125	—12.98	11.38	0.68	—6.42	14.45	0.87

Differences

	Diff.	P.E. _D	D/P.E. _D
Between leaders and controls:			
Self ratings:			
a. Men	2.05	1.70	1.21
b. Women	7.90	2.15	3.67
c. Both sexes	3.01	1.42	2.11
Associates' ratings:			
a. Men	1.30	1.50	0.87
b. Women	10.00	1.64	6.10
c. Both sexes	6.56	1.10	5.91

*Negative scores indicate presence of *extravert* traits.

†The two associates' ratings are averaged for each subject.

between the means on self ratings/ $P.E._D = 3.67$), and were regarded by their associates as considerably more extraverted than was the case with unselected women (Diff. between the means on associates' ratings / $P.E._D = 6.1$).

The averages for the men are almost identical. As will be seen in Table 13, it is hardly judicious to pool the data for all leaders irrespective of the type of leadership. The overlapping is shown in Table 9.

TABLE 9
SHOWING THE PERCENTAGE OF THE RATINGS OF LEADERS THAT REACH OR EXCEED THE MEAN OF THE RATINGS OF CONTROLS, IN THE DIRECTION OF EXTRAVERSION

	No. of cases	Percentage of overlapping Self ratings	Associates' ratings
Men	59	43.2	56.6
Women	66	70.0	77.6

b. Self ratings versus associates' ratings on introversion. The rôle of the attitudes of others in relation to leadership is possibly brought out in Table 10.

TABLE 10
DIFFERENCES BETWEEN SELF RATINGS AND ASSOCIATES' RATINGS ON INTROVERSION (BASED ON TABLE 8)

	No. of cases	Diff.	P.E. _D	D/P.E. _D	% of overlapping*
Leaders:					
Men	59	3.85	1.58	2.44	66.1
Women	66	3.00	1.54	1.95	60.7
Combined	125	4.91	1.14	4.31	65.6
Controls:					
Men	59	0.50	1.62	0.31	54.2
Women	66	0.90	2.22	0.41	53.6
Combined	125	1.36	1.40	0.97	55.4

*The percentage of associates' ratings reaching or exceeding the mean of self ratings, in the direction of extraversion.

In the control group, self ratings and associates' ratings are much alike in mean score, though the difference is in line with the usual tendency: that individuals rate themselves as being more introverted than their friends rate them. Forty-two per cent of the men, and 45% of the women assigned more extravert traits to themselves than their associates attributed to them.

For leaders, the discrepancy is more pronounced, and the difference in central tendencies for the total group is statistically significant ($D/P.E._D = 4.31$). Thirty-one per cent of the men and 35% of the women thought of themselves as being more extraverted than the average of the two associates' ratings in each case.

Table 8 and Table 9, in which leaders and controls were compared by sex and type of rating, brought out the same point. The difference between prominent women and control women was largest on associates' ratings. Prominent men were slightly less extraverted than their controls on self ratings, but the direction of the difference was reversed on associates' ratings.

The halo surrounding the leader is not explained by the data at hand. Furthermore, the fallible nature of the ratings and the slim margin of the difference would justify only passing mention of the point.

c. *Sex differences in ratings on introversion.* The sex difference in the leader group is very likely a matter of selection affecting subgroups in various lines of activity, rather than an intrinsic sex difference.¹² Table 11 reports the data for college leaders.

TABLE 11

SEX DIFFERENCES IN INTROVERSION-EXTRAVERSION FOR COLLEGE LEADER GROUP

	N	Mean	S.D.	P.E. _M	Diff.	P.E. _D	D/P.E. _D
<i>Self ratings</i>							
Men	59	— 5.45*	13.45	1.18	6.45	1.69	3.82
Women	66	—11.90	14.60	1.21			
<i>Associates' ratings</i>							
Men	59	— 9.30	12.00	1.05	5.60	1.42	3.94
Women	66	—14.90	11.65	0.96			

*The minus sign indicates a tendency towards extraversion.

Prominent women are more extraverted than prominent men. Sixty-six per cent of the self ratings of the women, and 69% of their associates' ratings, reach or exceed the corresponding averages for men, in the direction of extraversion.

The sex difference in the control group, while not statistically significant, reverses the situation for the leaders. The figures are given in Table 12.

TABLE 12

SEX DIFFERENCES IN INTROVERSION FOR THE CONTROL GROUP

	N	Mean	S.D.	P.E. _M	Diff.	P.E. _D	D/P.E. _D
<i>Self ratings</i>							
Men	59	—7.50	13.85	1.22	3.50	2.16	1.62
Women	66	—4.00	21.40	1.78			
<i>Associates' ratings</i>							
Men	59	—8.00	12.20	1.07	3.10	1.71	1.81
Women	66	—4.90	16.00	1.33			

Among non-leaders, the men tend to be more extravert than the women. Sixty-one per cent of the ratings of the men reach or ex-

¹²No sex difference occurred when the same scale was applied to large samples of unselected students at the University of Minnesota (9).

ceed the means for women, in the direction of extraversion. The overlapping is identical on self ratings and associates' ratings.

An interpretation of the apparent sex difference is offered in the section immediately following.

d. Introversion scores of leaders in different fields. The data on subgroups are interesting and suggestive, though certainly not conclusive. Temperament scores are arranged according to the field of attainment in Table 13.

TABLE 13
INTROVERSION SCORES OF LEADERS IN DIFFERENT FIELDS

	N	Self ratings		Associates' ratings	
		Av.	S.D.	Av.	S.D.
Publications	26	— 3.45	9.80	— 9.40	11.50
Debate					
Men	14	— 0.57	15.52	— 7.43	9.70
Women	7	—12.71	18.52	—15.71	12.33
Both sexes	21	— 4.90	17.70	—10.10	14.10
Dramatics					
Men	8	— 7.63	14.46	—12.88	10.15
Women	10	—13.40	14.04	—14.10	13.74
Both sexes	18	—10.30	14.45	—13.55	12.40
Women's activities	46	—11.20	13.60	—14.55	10.75
Politics					
Men	11	—15.36	12.53	—15.73	9.59
Women	3	—21.67	18.41	—22.00	10.68
Both sexes	14	—15.70	13.75	—16.80	10.50
Total leader group					
Men	59	— 5.45	13.45	— 9.30	12.00
Women	66	—11.90	14.60	—14.90	11.65
Both sexes	125	— 8.07	14.96	—12.98	11.38
Control group					
Men	59	— 7.50	13.85	— 8.00	12.20
Women	66	— 4.00	21.40	— 4.90	16.00
Both sexes	125	— 5.06	18.25	— 6.42	14.45

Campus politicians ($N=14$) and leaders in women's activities ($N=46$), as total groups, are definitely more extraverted than other subgroups. One would anticipate a correlation between extraversion and ascendance in student government.

The men in debate ($N=14$) and publications ($N=26$) are the

least extraverted. A social temperament is less probable in these fields intrinsically. Also, ability is at a greater premium, and the offices are filled by faculty appointment. On self ratings, the mean scores of the two groups are 10 to 15 points above the mean for campus politicians, in the direction of introversion. The associates' ratings confirm the introvert tendency of editors and debaters.

Women debaters ($N=7$), in contrast to the men, are definitely extraverted. Moreover, in every activity where both sexes compete (debate, dramatics, and politics) the women are more extraverted on both sets of ratings. Whether this anomaly is produced by selection or drive, or both, is obscure.

There is a close agreement between the averages of subgroups (Table 13) on (1) self ratings and (2) associates' ratings. By the Spearman rank-difference formula, the two columns give a correlation of .97. As self ratings and associates' ratings have a relationship of .50 or so for individuals, the correlation of averages is to be expected.

TABLE 14
PERCENTAGE OF LEADERS MORE EXTRAVERTED THAN THE MEAN OF THE CONTROL GROUP

	N	Self ratings %	Associates' ratings %
Publications*	26	38.46	53.85
Debate			
Men	14	28.57	64.29
Women	7	85.71	85.71
Both sexes†	21	47.62	71.43
Dramatics			
Men	8	37.50	62.50
Women	10	60.00	70.00
Both sexes†	18	50.00	66.67
Politics			
Men	11	72.73	81.82
Women	3	66.67	100.00
Both sexes†	14	71.42	85.71
Women's activities	46	73.91	80.43

*All men.

†Leaders in every activity are compared with controls of the same sex. The total percentage of a subgroup combines the sexes after calculating the deviations from the control mean of the appropriate sex.

The scores of Table 13 are restated in Table 14 in terms of overlapping.

5. *Results on Inferiority Attitudes.* Ratings on the inferiority attitude were obtained under exactly the same conditions as the introversion data. The Heidbreder scale, as used in the Minnesota College Entrance Examination, combines both traits on a single list.

A number of studies have indicated the research possibilities of the inferiority scale. Heidbreder (10) culled the items from the literature and showed that the final list was internally consistent and that ratings on temperament were not entirely matters of preference (11). A reliability of .73 was reported for 147 college students retested on the same scale after an interval of six weeks. Inferiority attitudes are associated with low economic status (4) and physical defects (5) and are unrelated to college ability and college scholarship (4). Men studying for the Roman Catholic priesthood had significantly higher inferiority scores than control groups (14).

In scoring, inferiority items are assigned positive point values and non-inferiority items are given negative values. The weights were determined empirically.

a. *Inferiority scores of leaders and controls as total groups.* The scale does not discriminate between non-leaders and the total group of leaders, as may be gathered from Table 15. Here, again, it is indiscrete to lump the subgroups engaged in dissimilar activities.¹³

The gist of Table 15 is as follows: (1) On self ratings, prominent students have relatively higher inferiority scores, but the differences are slight. Fifty-six per cent of the leaders of either sex score above the median of the respective control groups. (2) On associates' ratings, the men's averages are identical. (3) Prominent women receive lower scores than unselected women on associates' ratings, only 33% of the prominent group placing above the control median. At the same time, the women leaders had attributed to themselves a slightly larger number of the feelings in question.

b. *Sex differences on inferiority attitudes.* Throughout, the sex differences confirm earlier studies based on the same scale, showing that inferiority feelings are commoner among women.

¹³See Table 17.

TABLE 15
INFERIORITY ATTITUDE SCORES OF MAIN EXPERIMENTAL GROUPS

	N	Mean	Leaders S.D.	P.E. _M	Mean	Controls S.D.	P.E. _M
Self ratings:							
Men	59	7.22	46.90	4.12	2.60	41.80	3.67
Women	66	25.80	42.70	3.55	19.70	47.90	3.98
Both sexes	125	17.36	45.06	2.72	10.00	46.36	2.80
Associates' ratings: (2 sets for each case)							
Men	59	-15.50*	32.60	2.86	-15.50	25.70	2.26
Women	66	-7.70	26.20	2.18	0.80	32.10	2.67
Both sexes	125	-10.12	30.97	1.87	-8.20	29.14	1.76
Composite ratings: (3 sets for each case)							
Men	59	-5.30	32.50	2.85	-10.60	23.00	2.02
Women	66	6.40	28.50	2.37	2.40	30.70	2.55
Both sexes	125	-0.28	30.87	1.86	-2.60	28.72	1.73
<i>Differences</i>							
			Diff.		P.E. _D		D/P.E. _D
Between leaders and controls:							
Self ratings:							
a. Men		(X)†	4.62		5.52		0.84
b. Women		(X)	6.10		5.33		1.14
c. Both sexes		(X)	7.36		3.90		1.89
Associates' ratings:							
a. Men			0.00		3.65		0.00
b. Women			8.50		3.45		2.46
c. Both sexes			1.92		2.56		0.75
Combined ratings:							
a. Men		(X)	5.30		3.49		1.52
b. Women		(X)	4.00		3.48		1.15
c. Both sexes		(X)	2.32		2.54		0.91

*A minus score indicates a tendency towards non-inferiority.

†Comparisons showing higher inferiority scores for the leaders.

In the attainment group, 64% of the self ratings, and 61% of the associates' ratings, of women, reach or exceed the corresponding medians of men, in the direction of inferiority. The D/P.E._D values¹⁴ are 3.42 and 2.17 in this group.

For non-leaders, 70% of the scores of women are higher than the medians of the men, the overlapping being the same for both sets of

¹⁴Calculated from Table 15.

ratings. The critical ratios are 3.16 for self ratings and 4.66 for associates' ratings.

c. *Self ratings versus associates' ratings on inferiority attitudes.* Both groups profess more inferiority attitudes than their associates ascribe to them. This tendency has been noted before. Our data on the point follow in Table 16.

TABLE 16
DIFFERENCES BETWEEN SELF RATINGS AND ASSOCIATES' RATINGS ON INFERIORITY ATTITUDES

	No. of cases	Diff.	P.E. _D	D/P.E. _D	% over-lapping*
Leaders:					
Men	59	22.72	5.01	4.53	37.8
Women	66	33.50	4.17	8.03	21.5
Both sexes	125	27.48	3.30	8.33	27.7
Controls:					
Men	59	18.10	4.31	4.20	34.8
Women	66	18.90	4.79	3.95	34.4
Both sexes	125	18.20	3.31	5.50	34.5

*Percentage of self ratings reaching or exceeding the median of the associates' ratings, in the direction of non-inferiority.

The discrepancy is particularly pronounced for prominent women. Only 20% of the women leaders attributed fewer inferiority traits to themselves than were assigned to them by their associates. Associates' ratings were similarly diagnostic for women leaders on introversion.

d. *Inferiority scores of leaders in various activities.* Direction of achievement again seems to go with qualitative differences in temperament. The data on this scale are arranged by field in Table 17.

Of all subgroups, debaters have the highest inferiority scores. The difference of 25 points or so between the mean of this group on self ratings and the control means suggests a real discrimination.

Campus editors are least subject to feelings of inadequacy. The mean of -5.0 on self ratings falls 32 points below the mean of men debaters, in the direction of non-inferiority, and 8 points below the average of men in the control group. Interestingly, the editor group had a marked introvert tendency. This combination of

TABLE 17
INFERIORITY ATTITUDE SCORES OF LEADERS IN DIFFERENT FIELDS

	N	Self ratings		Associates' ratings	
		Mean	S.D.	Mean	S.D.
Publications	26	— 5.00	42.10	—19.65	32.65
Politics					
Men	11	— 0.64	45.87	—14.91	30.12
Women	3	69.67	25.85	13.00	26.28
Both sexes	14	15.70	52.00	— 9.30	32.05
Women's activities	46	19.30	40.60	— 8.50	25.00
Dramatics					
Men	8	20.00	51.87	— 5.63	33.55
Women	10	19.90	38.01	— 3.80	32.03
Both sexes	18	23.30	42.50	—11.65	26.75
Debate					
Men	14	26.93	44.38	—10.29	37.93
Women	7	47.57	52.65	10.14	36.29
Both sexes	21	34.00	48.70	— 4.40	41.85
Total leader group					
Men	59	7.22	46.90	—15.50	32.60
Women	66	25.80	42.70	— 7.70	26.20
Both sexes	125	17.36	45.06	—10.12	30.97
Control group					
Men	59	2.60	41.80	—15.50	25.70
Women	66	19.70	47.80	0.80	32.10
Both sexes	125	10.00	46.36	— 8.20	29.14

traits¹⁵—high on introversion and low on inferiority—confirms frequently observed cases of the college journalist who fits such an antithesis, whether by pose or underlying temperament.

Men in dramatics incline towards mild inferiority feelings. The average of the group on introversion was indistinguishable from the norm.

High inferiority scores characterize the three women in politics. These same women had a strong extravert tendency.

¹⁵The two scales correlate about .50, yet, occasionally, they work differently for groups. In this study, note the inverted position on the two scales of (1) women in politics and (2) men in publications. In a previous study of Roman Catholic theology students (14) the tests behaved quite independently. Age (?) affected the inferiority attitude but not introversion.

There is little difference between the norm and women in dramatics and student's organizations.

A correlation of .74 obtains between a rank order of the means of (1) self ratings and (2) associates' ratings for the subgroups listed in Table 17. Again, from the correlation of .50 or thereabouts between the self and associates' ratings of individuals, the correlation of means would follow.

The scores are restated in Table 18 with figures on overlapping.

TABLE 18
PERCENTAGE OF LEADERS WITH HIGHER INFERIORITY SCORES THAN THE MEAN
OF THE CONTROL GROUP

	N	Self ratings %	Associates' ratings %
Publications*	26	38.46	42.69
Women's activities	46	50.00	31.57
Debate			
Men	14	71.43	57.14
Women	7	57.14	57.14
Both sexes†	21	66.67	57.14
Dramatics			
Men	8	62.50	62.50
Women	10	50.00	50.00
Both sexes†	18	55.56	55.56
Politics			
Men	11	45.45	36.36
Women	3	100.00	66.67
Both sexes†	14	57.14	42.86

*All men.

†Computed after taking the deviation of each individual from the mean of the controls of the same sex.

GENERALIZATIONS ON MOTIVATION

Careers which are rationalizations of the personality are common-places of observation and have become a frequent topic of psycho-analytic case histories.¹⁶ Our account of motivation assumes adult

¹⁶Incidental to psychoanalytic emphasis on *unconscious* dynamisms (which we fail to follow on occasion), an already-mentioned and interesting feature of introversion and inferiority attitudes is the fact that in a previous study (11) ratings on temperament correlated positively with unconscious preferences and negligibly with conscious preferences.

"temperament" without raising the problem of the origin of temperament.

Impressionistic profiles are now drawn for the various achievement groups. The reservations of limited sampling, overlapping, and fallible data apply to the characterization of every subgroup.

Campus editors (N=26 men), though highly intelligent, are not distinguished scholastically. Their ratings indicate mild introversion (self ratings) and non-inferiority (self ratings and associates' ratings). The picture of the college journalist as bright, self-assured, and indifferent to the social demands of classroom and what others think may be interpreted as (1) a semi-conscious pose of the young literary person of high intelligence, or as (2) a more fundamental and less conscious drive which exploits a non-social outlet.

Intercollegiate debaters have superior intelligence and are strongly motivated. The men (N=14) profess a marked introvert tendency (SR's) and fairly extreme inferiority feelings (SR's). Women debaters (N=7) are extraverted (SR's and AR's), though they admit mild inferiority feelings. Debating appears to indulge, among other things, an unsocial, insecure temperament in men, and a mildly insecure, though extravert, makeup in women.¹⁷

Campus politicians are moderately able and do poorly in school. Both sexes (N=14) are strongly extraverted (SR's and AR's), and the women in politics (N=3) profess extreme feelings of inferiority (SR's)—the latter possibly an urge to "go out" for activities or to seek recognition for self-assurance.

Leaders in women's activities (N=46) perform creditably in the classroom and are slightly above average in college ability. The group tends to be extraverted (SR's and AR's) and is regarded by associates as inclining towards non-inferiority. It is impossible to say whether "extraverts" seek office more frequently or are selected out on a popularity basis, or whether the social classes which fill the majority of such offices, through the media of women's fraternities,¹⁸ are loaded with extravert "types."

¹⁷Faterson's (4) list of "inferiority interests" is intellectualistic in color. Our data posit a similar drive towards an *overt* activity. Faterson also reported a negligible correlation between inferiority attitudes and scholarship. It looks as though inferiority drives affect achievement qualitatively rather than quantitatively.

¹⁸Fraternity affiliation is extremely high for campus politicians and leaders in women's activities, as would be anticipated.

TABLE 19
MEMBERSHIP OF LEADERS AND CONTROLS IN SOCIAL FRATERNITIES

Type of activity	Total N in the group	Fraternity membership	
		N	% of total N in each group
Debate	21	6	28.6
Dramatics	18	10	55.6
Politics	14	12	85.7
Publications	26	15	57.7
Women's organizations	46	37	80.4
Combined leaders	125	80	64.0
Combined controls	125	27	21.6

Leaders in university dramatics are fairly able and do slightly superior work academically. The women ($N=10$) are mildly extraverted (SR's and AR's), though the men are slightly introverted (SR's). The inferiority scores of the men are a little higher than the norm. On the whole, Freud's contention for the exhibitionistic drive of the actor is unsupported in so far as the mechanism may be rooted in introversion and the inferiority attitude.

SUMMARY AND CONCLUSIONS

Distinction in student affairs at the University of Minnesota is assumed as a form of adult attainment, the particular campus activity denoting the direction of achievement. The subgroups include intercollegiate debaters ($N=21$), campus politicians ($N=14$), editors of student publications ($N=26$), leaders in dramatics ($N=18$), and prominent students in women's organizations ($N=46$).

The general characteristics of the prominent group ($N=125$), when compared with both sexes of a control group ($N=125$), are as follows: (1) superior social-economic status, (2) significantly greater college aptitude and superior scholastic attainment, (3) temperamental differences (introversion and inferiority attitudes) *within the group* so diverse, depending on the activity preference, that total group comparisons become rather futile, and (4) a halo surrounding the leader, especially prominent women, whereby a lack of introvert traits and inferiority feelings is ascribed by associates to a larger extent than occurs among non-leaders.

Direction of achievement is related to temperament at several

points: (1) the bright, relatively unmotivated, unsocial, self-confident campus editors; (2) the rather insecure, intellectualistic, and very intelligent group of debaters; (3) the campus politicians, who seem to be mediocre scholastically, strongly socialized, and, in the case of women, lacking in self-assurance; and (4) the extravert tendency of leaders in women's organizations.

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Pittsburgh, Pennsylvania

LE TEMPÉRAMENT ET LA DIRECTION DE L'ACCOMPLISSEMENT

(Résumé)

On suppose que la distinction dans les affaires des étudiants à l'Université de Minnesota est une forme d'accomplissement adulte et que l'activité universitaire spéciale indique la direction de l'accomplissement. Les groupes secondaires se composent des étudiants qui participent aux discussions publiques entre les universités ($N=21$), de ceux qui prennent part à la politique des étudiants ($N=14$), des rédacteurs des publications des étudiants ($N=26$), de ceux qui jouent les rôles principaux dans les pièces dramatiques ($N=18$), et des étudiantes les plus distinguées dans les organisations féminines ($N=46$).

Les traits généraux du groupe distingué ($N=125$), comparé aux deux sexes d'un groupe de contrôle ($N=125$), sont les suivants: (1) un état supérieur socio-économique, (2) une plus grande aptitude très significative aux études universitaires, et un rendement scolaire supérieur, (3) des différences de tempérament (les attitudes d'introversion et d'infériorité) *dans le groupe* si diverses, dépendant de l'activité préférée, que les comparaisons des groupes entiers deviennent assez vaines, et, (4) une admiration exagérée de l'étudiant distingué, surtout dans le cas des étudiantes distinguées, par où ses associés lui attribuent un manque des traits d'introversion et des sentiments d'infériorité plus fréquemment que dans le cas d'un étudiant non distingué.

La direction de l'accomplissement montre plusieurs rapports au tempérament: (1) les rédacteurs intelligents, relativement non motivés, non sociaux, sûrs d'eux-mêmes, (2) ceux qui participent aux discussions, lesquels sont assez peu sûrs, intellectualistes, et très intelligents, (3) ceux qui prennent part à la politique, lesquels semblent être médiocres au point de vue scolaire, très socialisés, et dans le cas des étudiantes, ne possèdent pas beaucoup de confiance en soi, et (4) les tendances extroverties des étudiantes les plus distinguées dans les organisations féminines.

SWARD

TEMPERAMENT UND RICHTUNG DER LEISTUNGEN

(Referat)

Auszeichnung in Studentenangelegenheiten zählt an der Universität von Minnesota als Fertigkeit Erwachsener, wobei die besonderen Betätigungen in diesen Angelegenheiten die Richtung der Leistungen angeben soll. Die Untergruppen bestehen aus Debattierenden ($N=21$), Universitätspolitikern ($N=14$), Redaktoren der Studentenveröffentlichungen ($N=26$), Führer in den dramatischen Aufführungen ($N=18$) und hervorragende Studentinnen in Frauenorganisationen ($N=46$).

Die allgemeinen Kennzeichen der Gruppe der Hervorragenden ($N=125$) sind bei einem Vergleiche mit einer Kontrollgruppe beider Geschlechter ($N=125$) die folgenden: (1) überlegener gesellschaftlicher-ökonomischer Stand, (2) bedeutend bessere Eignung fürs College, (3) so grosse Temperamentsunterschiede (Introversion und Minderwertigkeitsverhalten) *innerhalb der Gruppe*, je nach der Vorliebe für die eine oder andere Betätigung, dass ein Vergleich der Gesamtgruppen nutzlos wird, und (4) ein die Führer umgebender Glorienschein, besonders im Falle des weiblichen Geschlechts, wobei ihnen die Gefährten grössere Unabhängigkeit von in-

troverten Zügen und Minderwertigkeitsgefühlen zuschreiben als den Nichtführern.

Die Richtung der Leistungen hat etliche Beziehungen zum Temperament: (1) die geweckten, verhältnismässig unmotivierten, unsozialen, selbstvertrauenden Studentenredaktoren, (2) die eher unsichere, intellektuell eingestellte und sehr intelligente Gruppe der Debattierenden, (3) die Universitätspolitiker, deren Schulgelehrsamkeit mittelmässig ist, die stark sozial eingestellt sind, und im Falle der Frauen Selbstvertrauen mangeln und (4) die extraverte Tendenz der Führer in Frauenorganisationen.

SWARD

AN EXAMINATION OF A TYPICAL TEST OF INTRO- VERSION-EXTROVERSION BY MEANS OF THE METHOD OF SIMILAR REACTIONS*¹

From the Psychological Laboratory of the University of Nebraska

J. P. GUILFORD

In presenting his new "method of similar reactions" for the first time, Thurstone (2) suggested, among other things, that it might apply to the weighting of items in the usual questionnaire on introversion-extroversion. The affirmative and negative answers to the questions may be assumed to indicate varying degrees of introversion or extroversion. In the past, it has usually been assumed that reactions to such questions indicate either introversion or extroversion to the same degree, all reactions being weighted equally in the final score. It is more nearly the truth to assume that an affirmative or a negative answer to a certain question indicates a measurable position on the continuum that extends from extreme introversion at the one end to extreme extroversion at the other, running through an indifference point at a central position on the scale. A question that is not diagnostic would have a scale value at the indifference point. A diagnostic question would have either of two positions on the scale, depending upon whether the reaction is affirmative or negative, and the more diagnostic the question, the farther from the zero point are those two positions. The method of similar reactions would seem to be a feasible device for evaluating the scale positions of the affirmative and negative reactions to such questions.

The method rests upon the assumption that the more frequently two items are reacted to in the same manner, the nearer together they belong on the scale. The more frequently they are reacted to in contrary manner, the farther apart they are on the scale. The measure of similarity is called the ϕ -coefficient, or the empirical

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probability of a similar reaction. It is found by means of the formula,

$$\phi_{12} = \frac{n_{12}}{\sqrt{n_1 n_2}} \quad [1]$$

in which n_{12} is the number of individuals who respond similarly, let us say affirmatively, to both items 1 and 2, and n_1 and n_2 are the numbers of individuals who respond affirmatively to items 1 and 2 taken separately.

This simple formula holds, however, only when the reactions to the items are known to be perfectly reliable. Due to many causes, unknown or uncontrolled, the reactions to any item are not as a rule perfectly reliable. If we designate the coefficient of reliability of item 1 by the symbol p_1 , and the reliability of item 2 by the symbol p_2 , the complete formula for finding ϕ is

$$\phi_{12} = \frac{n_{12}}{\sqrt{p_1 p_2 n_1 n_2}} \quad [2]$$

The quantities p_1 and p_2 are defined by Thurstone as the percentage of the individuals who have the trait implied in the item under consideration and who actually report it by their reactions to the item. One method suggested for finding p_1 or p_2 is a process similar to the finding of the ϕ -coefficient as in formula [1]. The reliability of item 1, for example, would be given by the formula

$$p_1 = \frac{n_{11}}{\sqrt{n_1 n_1}} \quad [3]$$

in which n_{11} is the number of individuals who marked item number 1 affirmatively on both its first and second presentations, n_1 is the number marking it affirmatively on its first presentation, and n_1 is the number marking it likewise on its second presentation. Actually, p_1 as obtained in this way does not fully satisfy Thurstone's definition of reliability. It merely gives the empirical probability that any subject taking the test would mark item 1 the same way, were it presented again. It does not tell us the probability that the subject's answer indicates the truth about himself. But it does give us a statistical measure of the self-consistency of the test items, a measure which we need in formula [2]. And the chances are that there is a rather high relationship between this type of self-consist-

ency and the type of reliability that Thurstone is talking about in his definition. Certainly the more nearly the subjects tell the truth about themselves on any item, the higher would be the proportion of repeated constant reactions to the item. We cannot reverse the statement, however, and say that the higher the proportion of repeated identical reactions, the more likely it is that the subjects are telling the truth about themselves. A high degree of self-consistency might mean merely that the subjects were fixed in their self-deceptions or in their attempts intentionally to deceive others. But having no better measure of reliability to use in formula [2], we shall have to use the probability of repeated reactions as expressed by formula [3].

The ϕ -coefficients do not give directly the scale values or positions on the I-E (introversion-extroversion) continuum for the various items. The ϕ -coefficients are merely "coefficients of similarity." The larger ϕ is, the smaller is the scale separation between the two items. Furthermore, ϕ is the probability of a concurrence, and probabilities are not linear measurements. Thurstone assumes that the scale separation between any two items, expressed in sigma units, is to its corresponding ϕ -coefficient as an ordinate of the normal distribution curve is to its corresponding abscissa. The relationship is expressed by the familiar formula:

$$\phi_{12} = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(S_1-S_2)^2}{2\sigma^2}}$$

in which the quantity $(S_1 - S_2)$ is the scale separation between items 1 and 2. Knowing the ϕ -coefficients, the corresponding scale separations can be found from a table of the ordinates and abscissa values of the normal frequency curve. Knowing the scale separations between each item and every other one, the final scale positions can be computed.

The "typical test" used in this investigation has been described before (1), but it is necessary to repeat the items here for the sake of ready reference. The 35 items of which the test is composed were carefully selected by studying the writings of Jung and Freyd, and the Laird, Marston, Neyman-Kohlstedt, and the Northwestern tests. The 35 items are representative in that they cover the usual range of sub-traits supposed to belong to the I-E pattern, and in that the various writers and testers have agreed fairly well in their

use of them. This is an important consideration in the use of the method of similar reactions, for the final scale or continuum is defined by the very items selected. The scale position of every item is determined by the presence of every other item in the list. There is no criterion of the appropriateness of each item other than the common agreement of those who have settled notions about I-E and who have chosen the questions that are supposed to be indicators of this important trait. The method used here will be a check upon their judgments. If they have chosen unwisely in the case of any particular question, its final scale value will be zero, or at the indifference point. Any items, therefore, which are found to have values near zero are not at all diagnostic of I-E, whatever else they may indicate about personality. It may be that every item in the list, besides indicating something about I-E, if it does, may be diagnostic of some other dimension of personality. The linear scale separation between any two items found by means of the ϕ -coefficient for those two items alone may not lie exactly along the I-E continuum, but may extend in any one of an infinite number of directions except along that continuum. There is, in connection with the method as outlined so far, a final test of the scale values, known as the test of "internal consistency," which gives some indication as to how well the items fall into line or form one linear series. This test of internal consistency will be applied and its description will be left until that point in the present report.

The 35 test items were as follows:

- | | | | |
|---|-----|----|---|
| 1 | Yes | No | Do you express yourself better in speech than in writing? |
| 2 | Yes | No | Are you inclined to limit your acquaintances to a select few? |
| 3 | Yes | No | Do you generally prefer to take the lead in group activities? |
| 4 | Yes | No | Do you prefer to read about a thing rather than experience it? |
| 5 | Yes | No | Do you like work which requires considerable attention to details? |
| 6 | Yes | No | Are you generally very particular about your personal property, <i>i. e.</i> , do you take very good care of your things? |
| 7 | Yes | No | Are you inclined to be considerate of other people's feelings? |

- | | | | |
|----|-----|----|---|
| 8 | Yes | No | Are you inclined to act on the spur of the moment without thinking things over? |
| 9 | Yes | No | Have you ever kept a personal diary of your own accord? |
| 10 | Yes | No | Do you work much better when you are praised? |
| 11 | Yes | No | Do you like to change from one type of work to another frequently? |
| 12 | Yes | No | Are you inclined to study the motives of others? |
| 13 | Yes | No | Do you day-dream frequently? |
| 14 | Yes | No | Do you prefer to work with others rather than alone? |
| 15 | Yes | No | Are you inclined to worry over possible misfortunes? |
| 16 | Yes | No | Are you frequently somewhat absent-minded? |
| 17 | Yes | No | Do you like to persuade others to your point of view? |
| 18 | Yes | No | Are you inclined to keep in the background on social occasions? |
| 19 | Yes | No | Are you more interested in athletics than in intellectual things? |
| 20 | Yes | No | Do you usually dislike to change opinions you have already formed? |
| 21 | Yes | No | Do you like to speak in public? |
| 22 | Yes | No | Do you prefer to work things out for yourself rather than accept suggestions from others? |
| 23 | Yes | No | Do you have frequent ups and downs in mood, either with or without apparent cause? |
| 24 | Yes | No | Are you inclined to be slow and deliberate in movement? |
| 25 | Yes | No | Are your feelings rather easily hurt? |
| 26 | Yes | No | Do you enjoy getting acquainted with most people? |
| 27 | Yes | No | Are you inclined to keep quiet when out in company? |
| 28 | Yes | No | Do you adapt yourself easily to new conditions, <i>i. e.</i> , to new environments, situations, places, etc.? |
| 29 | Yes | No | Do you like to confide in others? |
| 30 | Yes | No | Do you express such emotions as delight, sorrow, anger, etc., readily? |
| 31 | Yes | No | Are you inclined to think about yourself much of the time? |
| 32 | Yes | No | Do you like to have people watch you when you are working? |
| 33 | Yes | No | Do you frequently rewrite social letters before mailing them? |
| 34 | Yes | No | Do you like to sell things? |
| 35 | Yes | No | Do you get rattled easily in exciting situations? |
| 36 | Yes | No | Are you a male? |

Since men have usually been supposed to be more extrovert than women, the factor of sex was used as a 36th item. In keeping with the rest of the questionnaire, we may state the 36th item, "Are you a male?" The affirmative and negative answers to this item were treated the same as all the other answers. Its reliability is of course 1.00.

The tests were given to 930 subjects, 430 men and 500 women, mostly in the freshman and sophomore classes. For the sake of finding the coefficients of reliability, they were given twice to 277 subjects, including 163 men and 114 women. For the sake of the computations of all the ϕ -coefficients, it was necessary to tabulate the frequency with which every item was answered affirmatively in conjunction with every other item by the 930 subjects, and the frequency with which every item was answered affirmatively altogether. For finding the reliability coefficients it was necessary, likewise, to tabulate the frequency with which every item was answered affirmatively both times, and the total number of affirmative reactions on each of the first and second presentations.

In his presentation of the method of similar reactions, Thurstone (2) makes no mention of the use of negative responses. He uses as illustrative material opinions about the church. For questions calling for agreement or disagreement with opinions about the church, it is likely that only affirmative replies have a definite meaning and hence a strict allocation on the continuum in question. A negative answer in such a case is rather noncommittal and has no definite scale position. But in the case of questions of the type found in the usual test of I-E, negative answers may be just as definite in meaning as the affirmative, and they can probably be given positions on the I-E continuum with a degree of accuracy that approaches that for the affirmative responses. The writer thought it at least worth trying, and so the necessary frequencies for the negative replies corresponding to those for the affirmative ones have been found.

None of the 1404 values needed for the use of formula [2] are presented here, but they are on file in the University of Nebraska laboratory, and interested persons may have access to them upon request. Neither are the 1260 ϕ -coefficients presented. To publish all these data would require two very large tables. In Table 1 are given only the final scale values (S. V.+) obtained from the

TABLE 1
SCALE VALUES AND WEIGHTS FOR AFFIRMATIVE (S.V.+ AND W+) AND FOR NEGATIVE (S.V.- AND W-) ANSWERS TO THE THIRTY-SIX TEST ITEMS

Item	1	2	3	4	5	6	7	8
S.V.+	.605	—	.818	.868	—	.092	.028	.103
S.V.—	—	.408	—	.690	.186	.001	—	.130
W+	5	2	5	1	3	4	4	4
W—	3	5	3	4	4	4	0	3
Item	9	10	11	12	13	14	15	16
S.V.+	—	.047	—	.149	.090	.198	—	.349
S.V.—	.110	—	.135	—	.700	.517	—	.681
W+	3	3	4	4	1.000	—	.630	.482
W—	4	6	2	2	3	5	3	2
					6	2	5	4
Item	17	18	19	20	21	22	23	24
S.V.+	.265	—	.937	—	.233	—	.109	—
S.V.—	—	.1073	—	.823	—	.312	—	.792
W+	4	2	.776	.255	6	.167	1.225	.503
W—	1	5	5	3	3	3	3	2
				4	4	4	6	5
Item	25	26	27	28	29	30	31	32
S.V.+	—	.477	—	.297	.339	.418	—	.439
S.V.—	.677	—	.832	—	.173	—	.167	1.431
W+	3	4	2	4	4	.561	.135	—
W—	5	1	5	1	2	4	4	.190
						3	3	6
						4	4	3
Item	33	34	35	36				
S.V.+	—	.456	—	1.077	.840			
S.V.—	.274	—	.362	—	.792			
W+	3	6	1	5	5			
W—	4	3	4	2	2			

affirmative replies, and also the scale values (S.V.—) for the negative replies. These scale values are represented graphically in Figures 1 and 2. The zero point in either case is the mean of the scale values for the group.

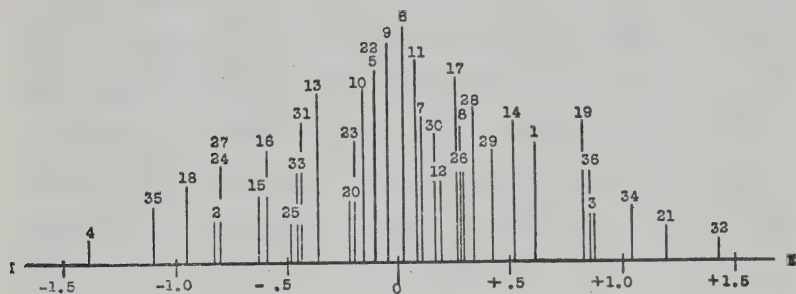


FIGURE 1
SCALE VALUES FOR THE AFFIRMATIVE RESPONSES

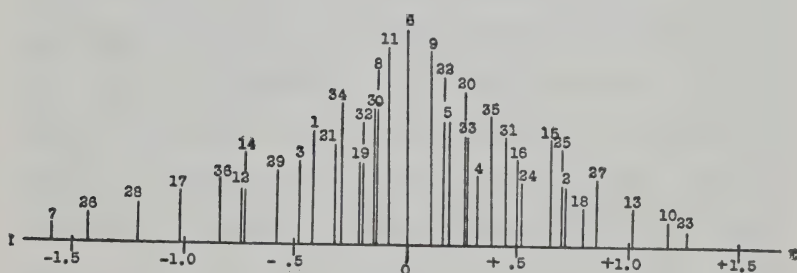


FIGURE 2
SCALE VALUES FOR THE NEGATIVE RESPONSES

It is significant that item 6 (very particular about one's personal property) was nearest to the zero point in both cases, and that all other items, without exception, are on the positive side of the scale in the one group and on the negative side of the scale in the other. This seems to justify the assumption that the negative answers give as clear an indication of scale position as do the affirmative ones. But it should be noted that items near the extremes on the one scale may be near the center on the other, and vice versa. For example, items 7 (considerate of other people's feelings) and 26 (enjoys getting acquainted) indicate but slight extroversion when

the reply is affirmative, but they seem to mean extreme introversion when the reply is negative. Items 21 (liking to speak in public), 32 (liking to be watched while working), and 34 (liking to sell things) all point toward extreme extroversion when the reply is affirmative, but they mean only a slight degree of introversion (Figure 2) when the replies are negative. Likewise, items 4 (prefers reading about a thing) and 35 (gets rattled easily) are the strongest indicators of introversion when the answers are affirmative, and only slight indicators of extroversion when the answers are negative. To take a final example, items 10 (works better when praised), 13 (day-dreams frequently), and 23 (has frequent ups and downs in mood) all mean slight introversion for "Yes" answers but they are the strongest indicators of extroversion for "No" answers.

Taken as a whole, the correlation between the two sets of scale values is about $-.58$. But the full import of the disagreement is better seen by the detailed examples just given. In general, the following statement covers the outstanding discrepancies: Items at the extremes of one scale, either the one for affirmative or the one for negative responses, tend to fall very near the middle of the other. The reverse of this statement is not wholly true, for many items remained near the indifference point in both scales. Among these were items 5 (liking work that requires attention to detail), 9 (keeping a personal diary), 11 (liking to change type of work frequently), and 30 (expressing emotions readily), in addition to item 6, which has already been mentioned.

How well do the scale locations agree with the traditional notions? In every case except one the items fall on the expected side of the I-E continuum. This item is 12 (inclined to study the motives of others). An affirmative answer is indicative of extroversion. Had the question been worded "Are you inclined to be suspicious of the motives of others?" the result might have been different. This one discrepancy demonstrates the necessity for a very judicious statement of the items. The scale values presented here hold only for the exact form of statement of the items that were used. By altering the wording of any statement, the scale values of the affirmative and negative reactions might be changed in one of several ways. Both values might be shifted toward either end of the scale, the two remaining the same distance apart on the

scale. Both might be brought nearer to the zero point, or the two might be in opposite directions, making the question more diagnostic. This leads to a suggestion that has been made before: that every question that is diagnostic enough to be useful should be worded several different ways and repeated several times throughout the test (1). When we remember that some of the items have a rather low coefficient of reliability, one as low as .603, it is all the more important that they be repeated if they are used at all, since there is more than a remote probability that a subject would give untrue answers to some of the questions. Repeated questioning with reworded items would be more likely to bring out the truth.

In the previously reported study (1), the items of the same test have been weighted by another process. It was assumed that there was a *g*-factor running through the 36 items, after the fashion of Spearman's two-factor theory for mental ability. Every item was correlated with the *g*-factor, and weights were found. The weights were positive or negative, according as the affirmative answer indicated extroversion or introversion, respectively. For the negative replies the signs of the weights were simply reversed. The present procedure, using the method of similar reactions, demonstrates the fact that the weights for the negative answers are not always equal to the weights of the affirmative answers with signs reversed. In using the Spearman process, it was assumed that the "Yes" and "No" responses for any item represented a normal distribution of the sub-trait involved. The Thurstone ϕ -process would indicate that this assumption may be correct for some items, but it certainly is not for others, for example, those items that are at the extremes of the scale for affirmative reactions and near the center of the scale for negative reactions, or vice versa. Nevertheless, it is of interest to compare the weights or scale values that were obtained by the two different processes, Spearman's and Thurstone's. Correlating the 72 weights in each set with one another, the Pearson *r* was exactly .83, which is lower than one who hopes to reach a scientific weighting for the items might desire, but it is high enough to show that the two processes lead to virtually the same results. The major source of disagreement may be laid to the fact that the Spearman process does not provide for distinguishing between weightings for affirmative and negative replies separately; the weights

obtained by his method are probably a kind of compromise between the two.

In scoring a test of 36 items, using the exact weights as those given in the column and row labeled *S. V.* in Table 1, the scorer's task would be unnecessarily tedious. And, furthermore, the error of measurement for each scale value is probably far too large to justify the use of three decimal places. Accordingly, the weights have been modified to read as they do in the column and row marked *W* in the table. The transformation is simple. The unit for the new system of weights is .5 sigma. This makes the total range of the scales 6 or 7 points. The zero point is shifted to the extreme left of the scales so that all weights are positive.

Using the two sets of weights, for the "Yes" and "No" answers, the papers of 60 men and 60 women, chosen at random, were scored. The men's scores ranged from 105 to 148, with a mean of 127.7. The women's scores ranged from 99 to 147, with a mean of 124.7. These 120 subjects had taken the test twice, so it was possible to find a coefficient of reliability of the test as a whole. For the men this was .806; for the women, .867; for both men and women combined, .842. The index of reliability, taking both sexes together, was .93. If the test, as weighted, measures any real dimension of personality, then the correlation between the test scores and the actual positions of the subjects on the I-E continuum is .93. Other tests with no higher reliability are in common use. But to the writer it would seem desirable to raise the reliability to a still higher figure by lengthening the test as already suggested.

Finally, we come to the test of internal consistency of the questionnaire as a whole. Having the scale values, as in the next to the last column, every one in turn was subtracted from every other one, giving 630 differences similar to the ones which had already been experimentally determined. The discrepancy between every newly obtained theoretical scale difference was computed. If these discrepancies are extremely small, the internal consistency is very good; if the discrepancies are significantly large, then the internal consistency is poor. The discrepancies ranged from 0 to 1.250, disregarding signs. The median of the 630 discrepancies was .347. Out of a total range of scale values amounting to 2.805, this is a significantly large median discrepancy. The mean was still larger, being .418, which is 14.9 per cent of the total range of scale values.

Clearly, the questions in this test do not lie in a single linear scale. In the previous study (1), after attempting a correlational analysis of the factors present in the test, the conclusion was reached that the test items represent a multi-dimensional system. It may be possible to project each and every item in the test upon a major axis which we can call the I-E continuum. But the method of similar reactions as it is constituted at present seems somewhat inadequate to the task. The scale separations between pairs of items may be regarded as linear, but the direction of these linear dimensions may bear various relationships to the major axis, all the way from perfect parallelity to complete perpendicularity. The method involves finding averages of all such distances, whether they are parallel or not. The question arises as to whether such an average means very much, whether it gives a valid measure of the projection of items on the major axis, in this case upon the I-E continuum. This question is one of psychometric method, however, and not of I-E in particular.

The rather low degree of internal consistency which we find might lead us to question whether or not there is a major dimension of personality running through the 36 items of the test. It is rather obvious from the procedure used here, and also from the Spearman procedure used in the previous paper, that the items indicate many things other than the single dimension in question. The results from this study, as expressed in Figures 1 and 2, are a little more favorable toward the existence of such a dimension of I-E. Every item, except possibly item 6, has a value other than zero on the scale, and all are therefore diagnostic, whereas, according to the Spearman method, at least six items had no diagnostic value whatever. If one is determined to have a test of I-E composed very much like the one that has been used in this study, and if one wishes to weight the affirmative and negative responses differentially, then the method of similar reactions might be depended upon to give rough evaluations of those responses, on a seven-point scale, for example. The mean discrepancy which was found was .418, which is less than the .50 unit into which the scale was divided. The chances are that, whatever are the defects of the method of similar reactions in dealing with the test items, the final scale values are reasonably correct. It is urged, however,

that such a test should be lengthened to at least three times the length of the one used here in order to raise the reliability to an acceptable point.

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University of Nebraska
Lincoln, Nebraska

UN EXAMEN D'UN TEST TYPE D'INTROVERSION-EXTROVERSION AU MOYEN DE LA MÉTHODE DES RÉACTIONS PAREILLES

(Résumé)

Le test type d'introversion-extroversion (I-E) de la variété Oui-Non ne fait aucune distinction entre les réponses affirmatives ou négatives aux différents points. Cette étude suppose que les réponses aux points du test indiquent des positions différentes de l'échelle sur une continuité qui s'étend de l'introversion à l'extroversion. Pour évaluer les réponses d'un individu, on suggère l'emploi de la technique employée dans "la méthode des réactions pareilles" de Thurstone. La supposition à la base de cette suggestion est celle-ci: plus un groupe de sujets réagit fréquemment de la même manière à deux questions, plus les réponses aux deux questions sont proches sur la continuité.

On a fait subir un test de 36 questions représentatives à 930 sujets. Pour les réponses affirmatives et négatives, on a computed les séparations sur l'échelle selon la méthode Thurstone. A une exception possiblement, on aurait pu prédire le signe des valeurs de l'échelle, positives ou négatives, d'après les opinions communes de ceux qui ont choisi les questions trouvées dans les tests I-E. Les points qui ne sont pas du tout diagnostiques quand on considère la réponse affirmative peuvent être très diagnostiques quand on considère la réponse négative, et vice versa.

Le test, quand les résultats sont pesées, a eu un coefficient de constance de 0,84. On recommande qu'on accroisse la longueur du test plusieurs fois, en répétant très souvent chaque question diagnostique en diverses formes.

GUILFORD

DIE PRÜFUNG EINES TYPISCHEN TESTS FÜR INTROVERSION- EXTRAVERSION DURCH DIE METHODE ÄHNLICHER REAKTIONEN

(Referat)

Die typische Test der Ja-Nein Form für Introversion-Extraversion (I-E) unterscheidet nicht zwischen bejahenden und verneinenden Antworten auf die verschiedenen Angaben des Tests. Die vorliegende Untersuchung setzt voraus, dass die Antworten auf die Angaben des Tests verschiedene Stel-

lungen des Schemas im ununterbrochenen Verlauf von der Introversion zur Extraversion anzeigen. Man schlägt vor, die in Thurstones "Methode ähnlicher Reaktionen" enthaltene Technik anzuwenden, um die Antworten eines Individuums zu schätzen. Die fundamentale Voraussetzung dafür ist, dass je häufiger eine Gruppe von Versuchspersonen in gleicher Weise auf zwei Fragen antwortet, um so näher die Antworten auf die zwei Fragen im ununterbrochenen Verlauf liegen.

Man stellte 930 Versuchspersonen 36 representation Fragen. Die Aussonderungen des Schemas [scale separations] wurden für die bejahenden wie für die verneinenden Antworten mittels der Thurstoneschen Methode berechnet. Möglicherweise mit einer Ausnahme hätte das Vorzeichen der Schätzungsgrösse, ob positiv, oder negativ, aus den Meinungen derjenigen vorausgesagt werden können, die die Fragen für den I-E Test gewählt hatten. Die Angaben haben gar keinen diagnostischen Wert, wenn die bejahende Antwort berücksichtigt wird, vielleicht sehr grossen diagnostischen Wert, wenn die negativ Antwort berücksichtigt wird, und umgekehrt.

Der Test mit abgewogener Schätzung hatte einen Zuverlässigkeitskoeffizienten von 0,84. Man schlägt vor, dass der Test mehrfach verlängert werde, indem man jede diagnostische Frage in abweichender Form mehrere Male wiederholt.

GUILFORD

THE NATURE OF ATTITUDE*

From the Department of Sociology of the University of North Dakota

D. D. DROBA

The purpose of this article is to give a theoretical analysis of the "attitude" concept. As with many other social psychological terms, a lack of sufficient uniformity of understanding and use of the term "attitude" exists among the various writers in this field. It has been used in subjective and objective, narrow and broad senses. This paper aims to contribute to a clarification of the concept.

Considering most of the major literature on attitudes, writers differ as to their willingness to give a definition of the concept. They may be divided into three groups: First, those who do not give a definition. The second group includes those who give a tentative working definition in connection with some research. In the third group belong those who give a more elaborate definition, often as part of some theoretical discussion.

Certain objections have been advanced against defining an attitude, particularly by those belonging to the first group. One of them is the suggestion that research on attitudes can be carried on without a definition. It is true that research can be carried on without a definition, but a theoretical analysis of the concept will very likely help to carry on such research with greater precision, because the underlying phenomena are understood with greater accuracy. Such an analysis may also suggest new problems that could otherwise not be uncovered.

Another objection to defining an attitude is sometimes implicitly, if not explicitly, stated as follows: Attitudes are too intangible and too hypothetical phenomena to be amenable to a satisfactory description and explanation. In response to this objection, it can be said that attitudes are no more "hypothetical" than any other psychological phenomena, such as intelligence, mechanical ability, and musical ability. They are made "tangible" through certain in-

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dicators, such as statements that are accurate enough for the purposes of measurement.

A third objection is given in the form of a statement that research is the way for clarifying the nature of attitudes and not a theoretical analysis. This objection seems to place too much emphasis on research. Both analysis and research should be used for clarifying the situation, and not research alone. Analysis can be of about as much help to research as research is to analysis.

The nature of attitude will be treated under several headings as follows: the use of the term, the composition of attitude, the development of attitude, the object of reference, types of attitudes, relation of attitude to other phenomena, and attitude in its relation to behavior.

THE USE OF THE TERM

The term "attitude" is a transliteration of the term "aptitude" which had been used exclusively by painters and sculptors. "Aptitude" is derived from the Latin "*aptitudo*" which in turn comes from "*aptus*," meaning suited, fitted. As soon as "aptitude" took the form of "attitude," its use became a general one.

For the purpose of obtaining a somewhat more accurate estimate of the use of the term in scientific literature, the writer has examined the indexes of fifty-five textbooks in the fields of sociology, psychology, and social psychology. In doing this the writer recognizes the fact that appearance in the index is only a very limited way of indicating the use of a term. Sometimes a term is employed in the text but is not included in the index. However, the index will at least show what terms or concepts were considered important enough by the author to be included in it.

Table 1 shows that out of the twenty textbooks in sociology six have included the term in the index. This is 30 per cent of the total. Among the twenty textbooks in psychology ten have used the term, which is 50 per cent of the total. Fifteen textbooks in social psychology have been reviewed and all but two were found to have used the term. One of them did not include the term in the index but its use all through the book was at once evident. Thus 86 per cent of the writers on social psychology have employed the term.

Among the writers of these fifty-five textbooks, Giddings was

TABLE 1

Textbooks	Before 1900	1900-20	1920-25	After 1925	Total
Sociology (20)	1		1	4	6
Psychology (20)		3	3	4	10
Social psychology (15)		1	4	8	13
Total number of texts using the term	1	4	8	16	29
Total number of texts examined	2	17	16	20	55
Percentage of the total	50	23	50	80	52

the first to use the term in his *Principles of Sociology*, published in 1896. Judd, a psychologist, came next. He used it in 1907. Another psychologist, Münsterberg, employed it in 1917; and Warren, a psychologist, in 1919. All others used the term after 1920.

It is evident from the above that the use of the term "attitude" in American scientific literature, so far as the textbooks represent it, is a very recent one. Before 1900 it appears in only one textbook, between 1900 and 1920 in four, between 1920 and 1925 in eight, and after 1925 in sixteen textbooks.

About the same trend is apparent if the percentages of the total number of books in each period are taken into consideration. One of the two books mentioned before 1900 contains the term, which is 50 per cent of the total. This number is not representative because of the absence of old books from the library. Between 1900 and 1920, 23 per cent of the total number of books have used the term; in the period from 1920 to 1925, 50 per cent; and after 1925, 80 per cent.

It seems that the greatest impetus for an extensive use of the term comes from the field of social psychology. We have seen that social psychologists have employed it more frequently than the sociologists or the psychologists. Thomas and Znaniecki, the social psychologists, seem to be responsible for introducing the "attitude" concept into the literature of American sociology and social psychology through their monumental work, *The Polish Peasant in*

Europe and America (1918-1920). The increasing interest of psychologists in the term can be traced back to a reaction from the extremities of the instinctivists and from the impractical S-R psychology of a few years ago.

After such an analysis as the one above, it seems quite out of place to suggest discarding the term, as one writer has done. The general trend for its use is an extensive one. Moreover, to suggest the discarding of a useful term seems to be contrary to the present needs in sociology, social psychology, and psychology. We do not possess an adequate number of terms to cover all the various phenomena we know. A real service to scientific terminology would be made by suggesting new terms for the new concepts and elements of phenomena that have been discovered in the different fields of social science.

THE COMPOSITION OF ATTITUDE

There is a pretty general agreement among writers in this field that an attitude is a certain subjective state of preparation to action. It is the foreshadowing of what the individual will likely be doing with respect to the object in question. Only a very small minority would identify an attitude with the behavior of the person. The latter extremists belong largely to the behavioristic school of psychology.

When the next question is asked—what is this preparation to action?—opinions begin to differ considerably. Samples of the various definitions of attitude will be given below. Four major types of definitions of attitudes may be distinguished as follows:

1. *The "organic-set" type.* An attitude is largely a physical preparation to action. Past experiences leave certain permanent traces in the neural and muscular system and, when the proper stimulus is presented, a certain activity will follow which is in line with the habitualized mechanism. Under this heading two subtypes of definitions may be distinguished: the "motor-set" type, and the "neural-set" type.

An example of the first sub-type of definition is that of F. H. Allport (1). According to him an attitude is "the motor set built up by suggestion." He gives several examples and continues to say that "all examples of this sort involve a preparatory setting of the synapses at the motor centers and possibly increases in tonicity of

the muscles to be employed in carrying out the line of behavior suggested."

The second sub-type may be represented by G. W. Allport (2) who says that "an attitude is a disposition to act which is built up by the integration of numerous specific responses of a similar type, but which exists as a general neural 'set' and when activated by a specific stimulus results in behavior that is more obviously a function of the disposition than of the stimulus."

It seems that the tendency among the exponents of the neural and the motor theories is to point toward something tangible when writing about attitudes. However, explanations of this sort are just as hypothetical as any other theories. Very likely there is a relation between the neural, motor, and the mental phenomena, but just what this relation is, we do not know.

2. *General theories.* According to writers belonging to this group an attitude is a very general preparation to action. The definitions are less definite than any found in the literature. In the terminology of Lundberg (19), an attitude "denotes the general set of the organism as a whole toward an object or situation which calls for adjustment. . . . It includes all the neural and other physiological sets and postures, and their psychological correlates, toward a situation." For Dewey (10) an attitude is something latent, potential, subdued, non-patent, a form of habit which requires a positive stimulus other than the attitude.

Of course, the major defect of the above theories lies in their vagueness. The writers have intended to give some kind of definition in order to satisfy the usual requirement of describing a phenomenon in question, but have not gone far enough in analyzing it. In an attempt to differentiate between the various states of the mental constitution of man it is always better to give as definite an analysis as possible.

Cantril's (9) important contribution to the theory of attitudes is the finding that attitudes are general rather than specific. This does not mean, however, that the "general" nature of attitudes cannot be analyzed and described in specific terms.

3. *The behavior theory.* This theory represents a deviation from all the other theories of attitudes in that an attitude is not a state of preparation in the individual but the behavior itself. The

totality of certain types of conduct with respect to a particular object of reference is said to be the content of an attitude.

In the opinion of Bain (3), an attitude is "the relatively stable overt behavior of a person which affects his status." "Attitudes which are common to a group are thus social attitudes or 'values' in the Thomasonian sense. The attitude is the status-fixing behavior. This differentiates it from habit and vegetative processes as such, and totally ignores the hypothetical 'subjective states' which have formerly been emphasized."

To call attitudes a form of behavior is a confusion of concepts, or a misunderstanding of the preparatory functions of the individual. That preparatory mental states and functions do exist is obvious to anyone on a close analysis. Before I go to a club meeting I make a certain preparation. I recall the notice I saw on the bulletin board, the name of the speaker, the topic of his speech; I anticipate the value of listening to him; and possibly I may think of the type of people I may meet that night. All these things have prepared me to go, they have created in me a predominantly felt disposition to attend when the time arrives. That readiness to go is all in the individual, it is not an overt behavior. The overt behavior will follow as a result of the attitude.

Symonds (25) has also expressed the opinion that attitudes are concerned with doing, with reactions rather than with anything else. However, he recognized that "verbal attitudes" are of special value in a democratic community where the common conduct—the carrying-on of affairs—comes from the verbally expressed desires of the people.

4. *The "mental-preparation" theories.* Definitions falling under this heading are similar to those described in the first two groups in that a readiness to act is taken as a basis rather than the behavior itself. The difference is, however, that these theories are largely couched in mental terms as compared with the neural and motor theories, and are more specific than those included under the general theories.

Several varieties of definitions may be noticed in this group of writers.

a. *The "behavior-patterns" type.* Park and Burgess (22) wrote that "the clearest way to think of attitude is as behavior pattern or unit of behavior. The two most elementary behavior

patterns are the tendency to approach and the tendency to withdraw." According to Wolfe (29), "an attitude is the type of sentiment which the individual manifests upon the recurrence of a given situation. It is a behavior pattern, with reference especially to the 'feeling' side of response." In the terminology of Bernard (6), "attitudes are for the most part acquired behavior patterns having been built up out of our experiences in characteristic situations."

The above definitions suggest an inclination toward a behavioristic trend of thought, yet the difference is apparent. The "behavior patterns" are traces of previous and future conduct of the individual. In the opinion of the writer, the phrase "behavior patterns" is not an appropriate one because it lays too much stress on the behavior that is to follow.

b. The "tendency-to-act" type. Faris (12) is one of the social psychologists expounding this theory. He writes that "an attitude is a tendency to act." According to Bogardus (8), "an attitude is a tendency to act toward or against something in the environment which becomes thereby a positive or negative value." Murphy and Murphy (20) wrote that attitudes are "verbalized or verbalizable tendencies, dispositions, adjustments toward certain acts." Young (30) also reduces attitudes to "sets or tendencies to action."

These definitions belong among those that most nearly approximate the facts. An attitude is very much like a tendency to act toward or against an environmental factor. It is either favorable or unfavorable to an object. Of course, the intermediate degree may shade off almost imperceptibly into the favorable or the unfavorable side, but in the great majority of attitudes it is easy to decide which are "for" and which are "against."

c. Other types of definitions. Thomas and Znaniecki (26) maintain that an attitude is "a process of individual consciousness which determines real or possible activity of the individual in the social world. Thus, hunger, that compels the consumption of the foodstuff, the workman's decision to use the tool . . . are attitudes." Here the concept is extended too far. If hunger is an attitude, sex is also an attitude, and all other physiological drives, such as the desire to be in a temperature similar to the temperature of the body and to withdraw from a painful stimulus. An attitude

is a sociological and psychological concept having little or nothing to do with the physiology of the organism.

North (21) has defined attitude as "the totality of those states that lead to or point toward some particular activity of the organism. The attitude is, therefore, the dynamic element in human behavior, the motive for activity." North has extended the meaning of attitudes, just as Bain (4) has done, to include the motives. In my opinion, motives constitute a separate large field in the mental make-up of a human personality and should, therefore, not be confused with attitudes. Attitudes point out the direction an activity will take; motives are the starters of the activity.

For Lumley (18) an attitude is "a susceptibility to certain kinds of stimuli and readiness to respond repeatedly in a given way—which are possible toward our world and the parts of it which impinge upon us." This definition seems to imply that an attitude is some kind of motive or dynamic set that is ready to function whenever the proper stimulus is given. Folsom (14) goes even further in saying that an attitude is "a reaction of the human being." However, an attitude is hardly a readiness to respond, or a response itself, it is rather readiness to respond in a certain way after the response has been elicited by the proper motive.

The writer's theory in brief is as follows: An attitude is a mental disposition of the human individual to act for or against a definite object. This "disposition" is composed predominantly of feeling elements. When we express our attitude toward a particular object, we are not reasoning about it, we are not aware of all the factors that go into the type of activity we are performing. We indicate our disposition half unconsciously as though we had known the "why" of it. For this reason, the expression of attitude is an immediate one. It is based on a series of experiences with respect to the object which have been molded into a totality that is too complex and too intimate to understand.

However, an attitude is not composed of feeling elements alone. In each case an attitude is conveyed; there is some awareness of the direction it takes. We are conscious of the object toward or against which we take a certain stand. We may even recall one or two reasons that have been forgotten. Hence some intellectual control of the direction we take in the attitude is noticeable, but it plays only a minor part in determining the direction. An attitude is a predominantly felt disposition to act in a certain way.

THE DEVELOPMENT OF ATTITUDE

Psychologists have been much concerned with the original nature of man. The instinctivist theories have had many followers, and the widespread intelligence tests were supposed to measure nothing but innate abilities. Recently, however, the instinctivist theories have lost popularity and many psychologists are beginning to doubt whether intelligence tests measure innate abilities only. In fact, some are recognizing that intelligence is a compound of inborn and acquired traits. Also greater attention is being paid than in the past to the so-called personality traits that are thought largely to be acquired during a lifetime. The shift from an interest in the measurement of innate tendencies to an interest in acquired abilities is clearly evident among psychologists.

Sociologists have always been concerned with the development of traits in the individual and the group. The subject-matter of sociology is such that it dwells constantly in the field of interaction, cultural products, and social change, and is working on the hypothesis that social life is to a high degree acquired.

For the above reasons it is easy to begin to write about the development of attitudes. There is nothing in attitudes that is not acquired. The origin of certain attitudes may run back to early childhood, but it does not go beyond the first day of the child's life. From then on, attitudes are modified and developed into a relatively constant system of dispositions to determine the directions of activities that are to follow.

Practically all writers on attitudes emphasize the developmental character of attitudes. A few of these points of view will be reviewed below.

Lasker (17) has shown how race attitudes are developed. He cites a number of cases in which some children play with children belonging to another race without any sign of prejudice. Others have acquired an unfavorable attitude toward the other race due to some unpleasant experience. A case indicating a distinct prejudice is as follows:

"A colored high school girl spoke admiringly to a little girl of five or six years of age. The child evinced fear at the greeting and turned to her mother: 'Oh, Mama, the nigger spoke to me!'"

A case in which no prejudice has been developed as yet is as

follows: "A baby of American parents was born in one of our Mexican colonies. It is now eight months old. It has as yet exhibited no feeling of difference between white and Mexican visitors. All of them fondle and play with it."

Bogardus (7) has found by a statistical method that the American attitudes toward the various immigrants are changing. Toward some immigrants the attitudes are becoming less favorable; toward others, such as the Spanish and the Czechoslovak newcomers, more favorable attitudes are being developed.

Attitudes toward war are all developed in a lifetime. If an individual is born into a society that is imbued with the war system, he will quickly become favorably disposed toward war. If an individual is born into a society without a war system, such as the Eskimos, he will either develop no attitude toward war or he will develop one of an unfavorable sort.

An interesting experiment had been performed by a Polish psychologist, F. Baumgarten (5). The date of the experiment was 1918, the place was Warsaw. It was performed during the German occupation of the Polish territory. The results were buried under the ground for fear that the Germans might seize them and punish the experimenter.

She submitted a questionnaire to 360 Polish boys and 340 Polish girls to find out why children hate. Among the questions asked was one with respect to happenings that affected them most. The children cited a number of striking incidents such as explosions, the cries or sobs of wounded or dying, the burning-up of the bridges, and the plundering of the German soldiers. Another question was as to what they wished for the enemy. A series of punishing statements were given such as death, falling off a four-story building, and that all should go to hell alive.

It is clearly evident from the experiment that the extremely unfavorable attitude of the Polish children toward the German soldiers was developed partly during the war while the children were experiencing the horrible incidents caused by the German invasion. An intense hatred for the Germans had been planted in the children as a natural consequence of the severe effects of war.

THE OBJECT OF REFERENCE

One of the indispensable components of an attitude is the object of reference. It is a concrete goal toward which an attitude is directed. It is the point with reference to which a man becomes disposed so that he can act for or against it whenever the appropriate motive presents itself. In fact, an object of reference is the center around which the attitudinal feelings will form a net of an integrated whole.

The object of reference may also be called a value. This value may be of at least three kinds depending on the type of attitude. If the attitude is unfavorable, the value will become negative; if the attitude is of a medium sort, the value will be medium; and, if the attitude is favorable, its value will be a positive one.

The object of reference or value should be a relatively definite one. The whole of the outside world is too broad and too indefinite an object. Occupation, war, religion, economic issues, and education are much more specific values. It is true that no sharp line can be drawn between the definite and indefinite objects. There are all shades of definiteness and vagueness. Yet for the sake of clarity a distinction should be made between the two.

There are as many objects of reference as there are items of appetite and aversion in the world. An enumeration and classification of all of them would be an almost impossible task. A relatively small number of objects or values with respect to their attitudes have been studied by the various investigators. These can easily be enumerated and classified. A partial list of the objects of reference toward which the attitudes have been studied is given below.

Economic Issues

- Distribution of wealth

- Desire for economic prosperity

- Proletariat cooperation for the establishment of a world state

- Confiscation of wealth

- Protective tariff

- Hereditary wealth

Political Issues

- Graft in politics

- The homeland

- Government ownership

- Freedom of speech
- Prohibition
- Public opinion
- Recognition of the rights of other nations and peoples
- International cooperation
- League of Nations
- International goodwill
- Social change
- Recognition of Russia
- Qualifications of Mr. Hoover
- Immigration
- The Fascist government
- American Constitution
- Races and Nationalities
 - White supremacy
 - The Nordic race
 - Miscegenation—the interbreeding of races
 - Mexicans
 - Filipinos
 - Americans
 - Negroes
- Religious Issues
 - Church
 - Worship
 - The reality of God
 - Church union
 - Religion and science
- Educational Issues
 - Academic freedom
 - Compulsory education
 - Science

TYPES OF ATTITUDES

Any classification must have a criterion or guiding principle. In a classification a single criterion must be adhered to consistently. Of course, there may be as many types of classification as there are criteria that can be devised, but it should be recognized that these are different types of classifications.

In the literature sometimes a classification is suggested with a very arbitrary criterion. The time criterion is a very arbitrary one. Thorndike (27) has used it and has suggested arranging attitudes into two classes: the fixed and the temporary attitudes. Under

the "fixed" heading would be classified such attitudes as racial, occupational, and social. An example of the temporary attitudes would be the instructional attitudes in an experiment. The difficulty is that this writer has extended the meaning of attitudes too far. Yet, if we could ascertain the "birthdays" of most of the attitudes, it would be possible to arrange them with respect to the length of time each was in existence.

Bernard's (6) classification is not fortunate either. He would have two classes, and in the first one he would put attitudes such as the muscular or body attitudes and would call them "overt attitudes." In the second group, the "inner or psychic attitudes," would belong the emotional and intellectual attitudes. The muscular or body "attitudes" should not be called attitudes but postures. In the writer's opinion all attitudes are inner or psychic. Warren's (28) classification into the primary and secondary attitudes is also a very arbitrary one.

Lumley (18) reports four types of attitudes: the attitudes of indifference, the practical attitudes, the emotional attitudes, and the scientific attitudes. A person who is indifferent, who does not want to have anything to do with an object of reference, does not have an attitude toward it. Hence "attitudes of indifference" do not exist. We should say simply that a person is indifferent toward the issue in question. Practical attitudes do exist as degrees of dispositions toward a practical way of dealing with problems. Emotional attitudes do not exist either. We should say simply that a person is emotional. Scientific attitudes are the favorable dispositions toward the scientific method of approach.

In the writer's classification three types of criteria will be used: according to the types of the objects of reference, according to the types of subjects or possessors of attitudes, and according to the degree of favorableness or unfavorableness toward the object of reference. Other types of criteria might be used, but these three are probably the major ones.

The first criterion is a very simple one. One should simply follow the classifications of the objects of reference. The divisions of attitudes and their object are essentially the same. Types of the objects of reference have already been discussed and a list of the major divisions has been suggested. Accordingly, there is no need of any further discussion of this type of classification.

The second type of criterion is a somewhat arbitrary one. The subjects or possessors of attitudes are the human beings. Now, a classification of human beings can be transferred to a classification of the attitudes they hold. Faris (11) has suggested a classification of this type. Attitudes of single individuals are called "individual attitudes," and attitudes of groups are named "group attitudes." He points out that the group attitudes are collective phenomena and not mere summations. The writer, however, does not think that any marked difference exists between an average of individual attitudes and the so-called "collective attitudes." The only difference is in the method of investigation. A statistical average is obtained by adding the individual scores and dividing the sum by the number of individuals. A "collective attitude" is obtained very likely by the method of observation. Krueger and Reckless (16) have also adopted this classification.

The third criterion is probably the most significant of all. The simple division of attitudes according to the degree of disposition is as follows: unfavorable attitudes and favorable attitudes. In common language, especially with respect to voting, the twofold division is frequently used. People are accustomed to say: "I am for or against him."

For the purposes of scientific analysis and measurement this type of classification should be carried further. One person may be more favorable to a certain issue than another person is. Or one may be extremely unfavorable toward an object as compared with the attitude of a person who is only mildly unfavorable toward it. As a result at least four types of attitudes can be distinguished. But the division can be carried still further and we may have at least as many as seven different degrees of attitudes: extremely unfavorable, strongly unfavorable, mildly unfavorable, medium position, mildly favorable, strongly favorable, and extremely favorable. A few of these types may sometimes be designated by single phrases such as pacifism and militarism, and optimism and pessimism. These types of phrases may sometimes be multiplied as follows: reactionism, conservatism, liberalism, and radicalism.

RELATION TO OTHER PHENOMENA

The relation of attitudes to all the major classes of phenomena cannot be considered here. Only four types of phenomena will be selected and analyzed as follows: trait, opinion, the wish, and the motive.

According to Katz and Allport (15) a "‘trait’ denotes a type of behavior which the individual exhibits in many differing situations; ‘attitude’ signifies the set to respond in a particular type of situation. This set may or may not be well integrated with the remainder of the individual’s personality." It is true that an attitude always refers to a "particular type of situation" or an object of reference, but it can function consistently in "many differing situations." I can be favorable to church in a club meeting, at a political gathering, on the train, in writing an article, and while talking to a friend. Also, there is no reason to limit the meaning of "trait" as a general concept.

The major distinction between a trait and an attitude lies in the object of reference: An attitude has a definite object of reference, while a trait has a very vague object of reference or it has none at all. Honesty, aggressiveness, and trustworthiness are traits because the object to which they refer has a very wide range and hence is very vague. Racism, militarism, and liberalism are attitudes because they refer to definite objects, races, war, and social change, respectively.

Rice (23) prefers to avoid the term "opinion" and to use "attitude" instead. To him "opinion" seems to connote too much of the rational and conscious elements. From the writer’s point of view the meaning of "opinion" may be changed even if it does connote some rationality. An opinion is what Symonds (25) calls "verbal attitude," but it has a closer relation to the actual attitude than Symonds would admit. An opinion is a verbal expression of attitude. It is an indicator of the underlying dispositions to act.

In this connection, Sherman (24) suggests that inhibitions may cause a person to retain the true and important parts of attitudes unexpressed. Here is a problem for research, but, for the time being, a large number of cases can be considered to eliminate to some extent the disturbing effect of inhibitions.

According to Bogardus (6), "an attitude is not necessarily an opinion, for the latter may be repudiated when the test of action comes." Yet an opinion is one of the best ways of expressing attitudes. It may not be a perfect index but it is a consistent one and, in studying the attitudes of large groups, it will be relatively easy to correct for the discrepancy existing between the opinion and the true indices of a subsequent behavior.

Park and Burgess (22) regard an attitude as a much broader concept than the wish. "If the attitude may be said to play the rôle in social analysis that the elementary substances play in chemical analysis, then the rôle of the wishes may be compared to that of the electrons." Wishes are then the components of attitudes. In the terminology of Faris (11), a wish is an incomplete act with a future satisfaction while an attitude is a residuum of activity coming at the end of satisfaction. A wish may be very temporary. As soon as it is satisfied it ceases to exist. An attitude is usually of a longer duration.

In the view of the writer, a wish is not a component of an attitude but belongs to a different field of the mental constitution of man. It is a motive of a certain kind. Motives should constitute a separate area in the treatment of preparatory functions.

The relation of attitudes to motives may be illustrated by the following analogy: Consider two important facts in target shooting: the pulling of the trigger, and the bodily posture that the shooter takes. Both of them are important conditions necessary for the purpose of hitting the target, but they are, at the same time, essentially different aspects of the total activity. The pulling of the trigger starts the shooting, while the bodily posture determines the direction the bullet will go.

The fundamental difference between attitudes and motives is to be found in the functions they perform. Motives are the starters, while attitudes determine the direction of the activity. The two may be causally related. The destructive results of war may motivate one to take an unfavorable attitude toward war. The constructive efforts of a journal may elicit a favorable attitude toward the journal.

ATTITUDE AND BEHAVIOR

There is a fairly general agreement among writers that attitudes are true indicators of behavior. An attitude will, in general, be followed by a type of activity indicated in the attitude. However, it is admitted that this is only relatively true. A certain amount of discrepancy between the two exists in almost every case. A mildly pacifistic attitude in time of peace will very likely result in a militaristic activity in time of war.

Bain (3) represents an exception with respect to an appreciation

of the value of attitudes as forerunners of behavior. The only test of a future conduct for him is how the person behaves at present. The present behavior may be a good index of the behavior that is to follow toward a particular object, but the obtaining of an accurate account of a person's conduct is a lengthy and difficult task, which becomes almost impossible if large groups are being studied. Again, the present behavior in many cases may be just as fallible an index of the future behavior as the attitude is.

In response to Bain, Faris (12) has shown that the subjective experiences are just as important as the objective behavior of a person. He admits that attitudes are difficult to investigate; nevertheless, "what is needed is not denial of the difficult but hard thinking and labor." Even Symonds (25) would admit that attitudes "often give a clue to underlying conduct trends."

To be sure, a discrepancy exists between an attitude and behavior, as pointed out above, and it is to be hoped that sometime we will be able to discover what this discrepancy is. The writer is of the conviction that the discrepancy is a constant one. To predict behavior from attitudes with a fair degree of accuracy will be possible only if the difference is taken into consideration. Suppose the score indicating an attitude is 16, and the constant discrepancy is 2. Now, in order to obtain the true index of behavior we subtract the discrepancy from the attitude score which will result in number 14. It is to be noted, however, that we do not expect to predict specific individual acts from attitudes, as Faris (13) well pointed out, but general tendencies in the behavior of groups.

Very little has been done as yet with respect to comparing attitudes with behavior. Zimmermann's (31) experiment is unique in this respect. He has tested farmers' attitudes toward cooperative marketing. He has also obtained the amount of experience of the farmers in cooperative marketing. A correlation was calculated between the two variables and was found to be $+0.66$. This is not a very high correlation but high enough to indicate a positive relation between attitudes toward cooperative marketing and experience in the same activity.

If the correlation between the two above variables is high enough, we shall be able to predict conduct from the attitudes. Before this is done, an extensive research must be undertaken concerning the relation of one to the other.

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University of North Dakota
Grand Forks, North Dakota

LA NATURE DE L'ATTITUDE

(Résumé)

Un examen de cinquante-cinq manuels de sociologie, de psychologie, et de psychologie sociale indique que l'emploi du terme 'attitude' est devenu beaucoup plus étendu dans les années récemment passées. Les auteurs diffèrent beaucoup à l'égard de la composition spécifique de l'attitude. On a distingué quatre types de théorie: (1) le type de 'set organique' avec deux variétés: le type de 'set moteur' et le type de 'set neural'; (2) les théories générales; (3) la théorie de comportement; et (4) les théories de 'préparation mentale.' Les auteurs s'accordent cependant généralement à croire qu'une attitude est une préparation pour l'action. Ils s'accordent aussi à croire que les attitudes sont pour la plupart acquises pendant toute la vie. L'objet de référence ou de valeur est une partie indispensable d'une attitude. C'est le point à l'égard duquel on devient disposé de sorte qu'on peut agir pour ou contre quand le mobile approprié se présente. On peut classifier les attitudes selon les types des objets de référence ou selon les types des possesseurs des attitudes, mais la classification la plus significative est selon le degré de disposition favorable ou défavorable exprimé dans l'attitude. Il faut clairement distinguer les attitudes et les phénomènes de personnalité tels qu'un trait, une opinion, le désir, et le mobile. Bienqu'il existe une contradiction entre les attitudes et le comportement, la contradiction est probablement constante et on peut la corriger lorsque l'on prédit le comportement d'après les attitudes.

DROBA

DIE NATUR DER VERHALTUNGSWEISE [ATTITUDE]

(Referat)

Eine Prüfung von fünf und fünfzig Lehrbüchern der Soziologie, Psychologie und Sozialpsychologie zeigt, dass der Ausdruck "Verhaltensweise" in den letzten Jahren sehr viel häufiger gebraucht wurde. Die Verfasser unterscheiden sich beträchtlich in Bezug auf ihre Beschreibung der Struktur der Verhaltensweise. Es werden vier theoretische Typen unterschieden: (1) der "organisch bestimmte" [organic set] Typus mit zwei Arten: der "motorisch bestimmte" [motor set] Typus und der "durch die Nerven bestimmte" [neural set] Typus; (2) allgemeine Theorien; (3) die behavioristische Theorie; und (4) die Theorien der "geistigen Vorbereitung" [mental preparation]. Die Verfasser stimmen aber ziemlich allgemein darin überein, dass eine Verhaltensweise eine Vorbereitung auf eine Handlung ist. Sie stimmen ferner darin überein, dass Verhaltensweisen im Wesentlichen innerhalb eines Lebens erworben werden. Das Ziel der Beziehung und des Wertes sind unerlässliche Bestandteile einer Verhaltensweise. Es ist der Punkt, unter dessen Beziehung ein Mensch so geneigt wird, dass er dafür oder dagegen handeln kann, wenn sich das passende Motiv darbietet. Verhaltensweisen lassen sich nach den Beziehungszielen oder nach den Typen der Träger der Verhaltensweisen klassifizieren, aber die wichtigste Klassifikation beruht auf Geneigtheit oder Abgeneigtheit, die in einer Haltungsweise ausgedrückt ist. Verhaltensweisen müssen deutlich unterschieden werden von Erscheinungen der Persönlichkeit, wie Charakterzug, Meinung, Wunsch und Motiv. Obschon schon ein Unterschied besteht zwischen Verhaltensweisen und Verhalten [behavior], ist dieser Unterschied wahrscheinlich konstant, und das Verhalten kann aus den Verhaltensweisen vorausgesagt werden.

DROBA

SELF-RATING OF PRISONERS COMPARED WITH THAT OF COLLEGE STUDENTS*^{1 2}

From the Institute for Juvenile Research, Chicago

RAY MARS SIMPSON

Many criminologists have stressed the need for more adequate studies dealing with the relationship between personality factors and crime. However, comparatively few objective attempts (i.e., by measuring devices) have been made to study personality traits, emotional tone, interest, will-temperament, moral attitude, and the critical judgment of those who are incarcerated in prison. The present study intentionally avoids many controversial issues and is designed merely to contrast the self-judgment of prisoners with the self-judgment of college students.

Very little is known about the real significance of self-rating. Cogan, Conklin, and Hollingworth (2) found "a tendency to over-rate the self on desirable traits and to under-rate the self on undesirable traits." Cattell (1) reports a similar tendency for individuals to overrate themselves on desirable traits. Shen (6) claims that there is less likelihood of overestimating intellectual traits than of overestimating emotional traits. He believes that self-ratings may give suggestive evidence of maladjustment. In short, there is a tendency to excuse the self rather than to overrate the self. The majority of self-ratings incline to optimism and altruism, says Hollingworth (3).

Both Knight (4) and Shen (5) point out the systematic error involved in the tendency to overestimate acquaintances. One needs to be constantly on the alert for such systematic errors in determining the validity of any kind of ratings. However, Cattell (1) claims that there is no consistent error in judging ourselves. Symonds (7, p. 109) in commenting upon Cattell's statement says that "if we

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²Studies from the Institute for Juvenile Research, Chicago, Paul L. Schroeder, M.D., Director. Series C.

consider all kinds of persons and all kinds of traits, we may agree that in a certain sense this is so."

The foregoing paragraphs are sufficient to show the general purpose and the trend of previous investigations dealing with self-ratings.

One method commonly employed to ascertain whether an individual actually overrates himself on desirable traits or not is to compare the self-rating of a given individual with the ratings made by several judges upon the individual in question. The difficulty here lies in securing impartial or competent judges. It is very important to establish the normal status of individuals before interpreting the results of any self-rating schedule.

In this study the self-ratings of 204 college students (104 women and 100 men) are compared with the self-ratings of 271 prisoners. The ages of the students range from 17 to 54 years, with a mean age of 22.9 years. The ages of the prisoners vary from 17 to 59 years, with a mean age of 26.7 years. Men and women are considered together in the college group since both gave practically the same results when handled separately. The prisoners were male inmates of the Illinois State Penitentiary. The following rating scale, prepared by the writer, was presented to each individual and he was asked to adhere to the printed instructions in detail. The letters I. J. R. identify the scale as the Institute for Juvenile Research Cluster Trait-Rating Scale.

I. J. R. CLUSTER TRAIT-RATING SCALE

Name Age Date

Draw a line through a number on the scale between each pair of words to indicate your opinion of yourself. For example, if you are exceptionally unfriendly draw a line through the zero (0). If you are exceptionally friendly draw a line through the number ten (10). The numbers from 0 to 10 indicate an increasing degree of friendliness.

Unfriendly	0	1	2	3	4	5	6	7	8	9	10	Friendly
Despondent	0	1	2	3	4	5	6	7	8	9	10	Hopeful
Irritable	0	1	2	3	4	5	6	7	8	9	10	Calm
Evasive	0	1	2	3	4	5	6	7	8	9	10	Direct

(*et cetera*)

Fifty pairs of opposite traits were included in the list. The complete list of traits used is shown in Table 1. Various lists of antonyms were surveyed in order to select a wide sampling of

TABLE 1
FREQUENCY TABLE SHOWING PERCENTAGE OF INDIVIDUALS WHO RATED THEMSELVES AT VARIOUS POSITIONS ON A SCALE FROM ZERO TO TEN
(204 students)

Traits mainly undesirable	0	1	2	3	4	5	6	7	8	9	10	Traits mainly desirable
Insane	1.5				5.4	7.4	7.4	7.8	10.8	12.7	54.4	Sane
Diseased			1.0		4.4	5.9	5.9	9.3	18.1	19.1	40.7	Healthy
Untrustworthy	.5				6.4	8.3	7.4	7.4	17.2	22.5	37.7	Trustworthy
Dishonest			.5		2.9	5.4	5.4	10.3	21.1	25.5	33.3	Honest
Unambitious		.5	1.0	1.5	1.0	4.9	8.8	8.3	15.7	24.0	34.3	Ambitious
Insincere	.5			.5	.5	5.9	3.9	16.2	20.6	21.1	30.9	Sincere
Untruthful	.5		.5		1.5	8.3	4.4	15.7	16.2	33.8	19.1	Truthful
Discourteous	.5	.5	1.5	1.0	3.9	4.4	7.8	10.3	18.6	28.9	22.5	Courteous
Unfair	.5		.5	.5	3.9	5.9	5.9	10.8	24.0	27.5	21.1	Fair
Disloyal	1.0	1.0		1.5	2.0	8.3	8.3	10.8	18.1	23.0	26.0	Loyal
Feeble				.5	.5	5.9	12.7	11.3	24.5	24.0	20.6	Vigorous
Unkind				1.5	1.5	4.4	6.9	16.7	27.5	26.0	17.2	Kind
Disobliging				.5	1.5	8.3	11.8	13.2	22.1	21.6	21.1	Obliging
Unimaginative	1.5	.5	1.5	1.5	2.9	8.8	8.8	10.8	21.1	21.6	21.1	Imaginative
Dependent	2.0	2.0	.5	.5	3.4	8.8	9.8	10.3	19.6	18.1	25.0	Hopeful
Unsympathetic	1.0	2.5	4.4	4.4	4.9	5.4	4.9	15.2	22.1	19.6	20.1	Sympathetic
Weak		.5	1.5	1.5	2.0	9.3	7.8	18.1	20.6	22.5	17.6	Energetic
Lazy		1.0	4.4	3.9	2.0	8.3	8.3	11.8	21.1	21.6	17.6	Industrious
Evasive	2.5	2.0		2.5	5.9	8.8	6.9	12.3	21.6	23.0	14.7	Direct
Extravagant	2.5	2.0	6.4	3.9	8.8	14.7	6.9	13.2	9.3	16.7	15.7	Saving
Disrespectful	.5	.5	1.5	1.5	4.9	6.4	9.8	16.2	20.1	18.1	20.6	Respectful
Irrational			.5	1.0	4.9	9.8	9.3	17.6	19.1	23.5	14.2	Rational
Unjust		.5		2.0	1.5	13.2	10.8	14.7	23.0	21.1	13.2	Just
Negligent			.5	.5	3.9	11.3	11.8	15.7	23.5	20.6	12.7	Careful
Weak-willed			.5	3.4	3.9	9.3	9.8	16.7	24.0	18.1	14.2	Strong-willed
Ignorant	1.0			.5	2.0	15.7	8.3	13.7	32.4	18.6	7.8	Well-informed

Traits mainly undesirable	0	1	2	3	4	Scale values			7	8	9	10	Traits mainly desirable
						5		6					
Cowardly			.5	1.0	2.5	14.2	10.3	14.7	29.4	17.2	10.3		Courageous
Unobserving	.5		1.5	3.4	2.9	8.8	14.2	14.2	19.1	21.1	14.2		Observing
Unfriendly	.5		.5	3.4	4.4	11.3	12.7	12.3	27.5	12.3	15.2		Friendly
Revengeful	1.5	.5	1.5		5.9	13.2	9.3	16.7	21.1	17.2	13.2		Forgiving
Wicked	2.9	1.5	1.0	1.5	3.9	18.1	7.8	12.3	17.6	12.3	21.1		Virtuous
Unintelligent	.5		.5		3.9	15.7	13.7	15.2	20.1	19.6	10.8		Intelligent
Dejected	.5	1.5	1.0	1.5	4.4	16.2	11.8	13.2	22.1	18.6	9.3		Cheerful
Stupid	1.0	.5		.5	1.5	12.7	16.2	18.6	28.4	14.2	6.4		Shrewd
Unsystematic	1.0		1.0	5.9	6.4	11.3	12.3	13.7	17.6	16.7	14.2		Systematic
Secluded	2.5	2.0	2.5	7.4	6.4	10.8	9.8	10.3	19.1	17.2	12.3		Sociable
Rash	.5	1.5	1.5	1.5	6.4	16.2	8.8	17.2	18.6	17.2	10.8		Cautious
Bad loser	3.4		1.5	1.0	6.4	18.6	8.8	14.2	11.8	19.1	15.2		Good loser
Unrepentant	2.9	2.5	4.4	6.4	4.4	10.3	9.8	13.7	18.1	17.6	9.8		Repentant
Discontented	2.0	1.0	2.5	5.9	9.8	11.3	6.4	17.2	24.0	10.8	9.3		Contented
Humble	1.5	1.0	2.0	3.9	5.4	19.6	9.3	14.2	26.0	9.8	7.4		Proud
Radical	2.5	1.0	5.4	6.4	8.8	11.8	9.3	9.8	20.6	14.2	10.3		Conservative
Impulsive	5.9	1.0	7.4	4.4	6.4	15.7	8.8	15.7	13.7	10.3	10.8		Deliberate
Dull	1.0		1.0	2.0	5.9	23.5	17.2	21.1	15.2	10.3	2.9		Witty
Selfish		1.5	3.9	6.4	7.4	21.1	10.3	13.7	13.2	14.7	7.8		Unselfish
Irritable	1.5	1.5	3.9	7.4	7.4	22.1	10.8	15.7	12.3	9.3	8.3		Calm
Vain	1.5	.5	3.9	2.9	8.3	26.5	12.7	10.3	14.2	10.8	8.3		Modest
Doubter	7.8	5.9	7.4	8.3	7.4	18.1	13.2	10.8	11.8	5.4	3.9		Believer
Irreligious	11.3	5.9	11.3	4.9	6.9	15.2	8.8	12.3	8.8	7.8	6.9		Religious
Sentimental	7.4	4.9	9.3	10.8	7.4	21.6	9.2	9.3	7.4	7.8	4.9		Unsentimental

TABLE 2
FREQUENCY TABLE SHOWING PERCENTAGE OF INDIVIDUALS WHO RATED THEMSELVES AT VARIOUS POSITIONS ON A SCALE FROM ZERO TO TEN (271 prisoners)

Traits mainly undesirable	0	1	2	3	4	5	6	7	8	9	10	Traits mainly desirable
Insane	4.4			1.1	.7	5.2	1.8	4.4	4.4	13.3	64.9	Sane
Diseased	8.1	.4		.7	1.5	7.4	3.0	6.3	10.7	13.3	48.7	Healthy
Untrustworthy	.7	.4	.4	1.5	6.6	4.4	5.2	6.3	14.4	11.1	54.6	Trustworthy
Dishonest	5.9	.7	1.1	1.5	4.4	10.3	4.4	8.1	15.1	8.9	35.1	Honest
Unambitious	2.2	.7			.7	5.5	4.4	6.6	9.2	14.0	57.2	Ambitious
Insincere	5.9	.7	.7	.4	1.5	7.7	3.0	8.1	14.0	16.2	41.7	Sincere
Untruthful	6.3	1.1		1.5	1.8	7.0	4.1	8.5	8.1	15.5	46.1	Truthful
Discourteous	3.0	.4	3.0	1.1	1.5	5.2	5.9	8.1	12.5	11.8	47.6	Courteous
Unfair	4.8	.4				7.7	3.7	7.4	6.6	12.2	57.2	Fair
Disloyal	7.4	1.1	.4	.7		3.0	5.9	5.5	14.0	13.3	48.7	Loyal
Feeble	13.7		.4		2.2	6.6	5.5	5.5	19.2	20.3	26.6	Vigorous
Unkind	.7			.7	.4	5.2	5.2	7.0	10.7	16.6	53.5	Kind
Disobliging	2.2				.7	6.6	5.5	8.1	18.5	14.0	44.3	Obliging
Unimaginative	16.2	.4	2.2	1.1	1.8	15.5	5.5	12.2	11.8	15.1	18.1	Imaginative
Despondent	4.4	.7	1.1	1.1	3.0	8.9	3.7	4.4	10.7	11.1	51.3	Hopeful
Unsympathetic	3.7		.4	.4	1.1	7.4	6.3	5.2	11.4	15.1	49.1	Sympathetic
Weak	12.5		1.5		.7	6.3	7.7	6.6	16.6	16.6	31.4	Energetic
Lazy	4.4				1.1	8.9	3.0	5.5	17.3	14.8	45.0	Industrious
Evasive	12.5			1.8	5.9	5.9	4.1	12.9	12.5	22.1	28.1	Direct
Extravagant	13.3	1.5	.7	.4	1.5	10.0	4.8	8.5	12.2	10.0	37.3	Saving
Disrespectful	3.7		.7	.4	.4	15.5	6.6	7.4	12.2	12.5	40.6	Respectful
Irrational	14.8	.4	.7	1.8	1.8	14.4	3.3	12.9	12.9	12.2	24.7	Rational
Unjust	3.3	.7	.4	.7		8.9	5.5	7.4	15.9	17.7	39.5	Just
Negligent	4.4			1.5	1.1	7.0	4.1	5.2	18.5	15.5	46.9	Careful
Weak-willed	7.7			.7	.7	10.3	3.3	8.1	14.8	14.8	39.5	Strong-willed
Ignorant	5.2	.4	.4	1.5	1.5	10.3	6.3	9.2	29.5	18.5	17.0	Well-informed

Traits mainly undesirable	Scale values										Traits mainly desirable	
	0	1	2	3	4	5	6	7	8	9	10	
Cowardly	4.1	1.1	1.8		1.5	10.7	5.5	8.1	18.5	9.6	39.1	Courageous
Unobserving	6.3	1.1		.4	2.2	7.0	4.4	10.7	15.5	14.8	37.6	Observing
Unfriendly	.7	3.0	.7	.7	.7	8.5	3.0	5.5	22.5	15.5	41.7	Friendly
Revengeful	4.8		.7		2.2	5.2	3.7	7.4	10.7	12.9	52.4	Forgiving
Wicked	7.7		1.1	.4	1.5	22.1	5.9	8.9	21.0	8.1	23.3	Virtuous
Unintelligent	1.8	.7	3.0	1.1	1.5	15.5	4.8	10.0	19.9	12.5	25.5	Intelligent
Dejected	6.6	1.5	1.1	3.7	3.3	12.2	8.5	12.2	11.1	11.4	28.4	Cheerful
Stupid	11.1				2.2	11.4	10.7	10.7	20.7	12.9	20.3	Shrewd
Unsystematic	6.3	1.8	.7	.7	.7	5.2	10.7	10.7	14.0	18.8	30.3	Systematic
Secluded	4.4	.4	1.1	1.1	.7	10.7	3.7	7.0	12.2	13.7	45.0	Sociable
Rash	8.1		1.8	3.7	2.6	14.0	5.2	8.5	12.9	12.2	31.0	Cautious
Bad loser	3.7	.7			.7	4.1	3.0	8.9	12.2	19.6	47.2	Good loser
Unrepentant	8.1	.4		.4	.4	9.6	5.5	9.6	13.3	12.2	40.6	Repentant
Discontented	18.1	3.0	3.3	6.6	7.0	21.8	5.9	7.7	8.5	5.2	12.9	Contented
Humble	10.7	1.1	2.6	2.6	3.7	24.7	9.2	9.2	6.3	8.1	21.8	Proud
Radical	11.1	.7			1.8	15.9	6.3	12.9	18.8	12.5	19.9	Conservative
Impulsive	12.2	3.0	.4	1.5	2.2	14.4	9.2	10.0	14.4	11.8	21.0	Deliberate
Dull	10.3	1.8	1.8	3.3	4.1	20.7	14.8	10.7	9.2	11.1	12.5	Witty
Selfish	4.1		.4	.7	.7	11.1	6.3	7.0	10.7	15.5	43.5	Unselfish
Irritable	6.6	1.5	1.5	3.0	2.2	10.7	4.4	11.4	18.1	11.4	29.2	Calm
Vain	4.8	.4	1.1	1.8	2.6	16.6	3.7	15.1	10.0	13.3	30.6	Modest
Doubter	7.4	1.8	2.2	2.2	3.0	18.8	6.3	8.9	19.9	10.0	19.6	Believer
Irreligious	17.3	.7	2.2	4.4	2.2	17.3	5.2	8.9	6.6	5.9	22.5	Religious
Sentimental	17.0	3.3	3.0	1.5	2.6	24.0	7.4	6.6	12.2	7.7	14.8	Unsentimental

personality traits. It was supposed that this widely scattered sampling of traits would give a more representative index of the personality of an individual than a small number of traits. Detailed definitions of traits were not given. Opposing traits in a sense actually define each other. The choice of the individual is limited by

Percentage
of Ratings

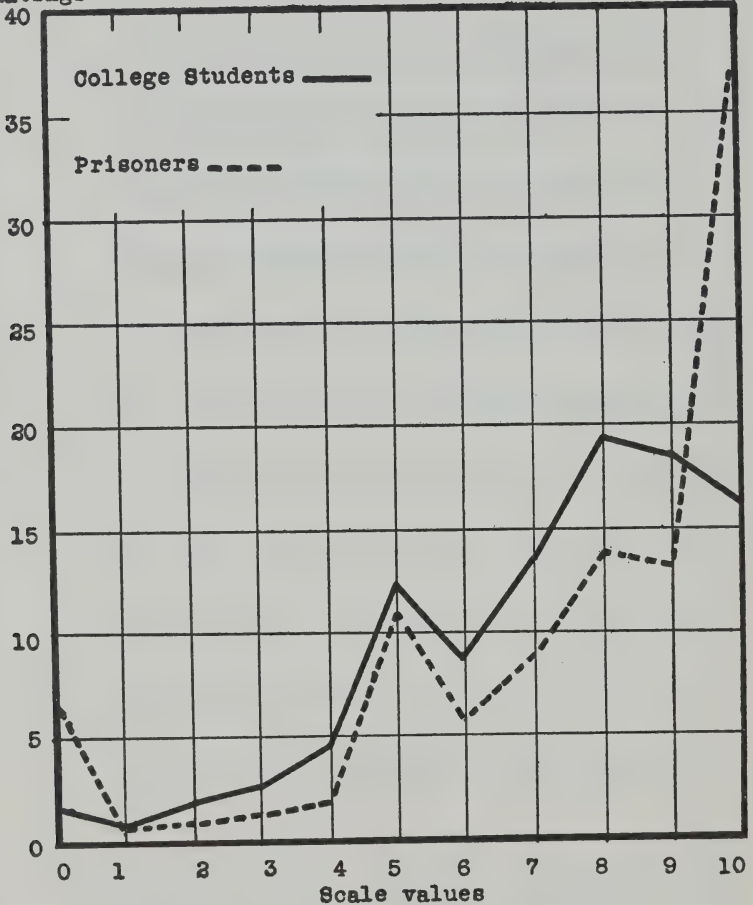


FIGURE 1

PERCENTAGE OF RATINGS ASSIGNED TO EACH SCALE VALUE
(204 college students compared with 271 prisoners)

two extremes in making each judgment. Further definition was deemed unwise from the standpoint of administration.

Tables 1 and 2 show the percentage of individuals who rated themselves at various positions on a scale from 0 to 10. For example, in Table 1, 54.4 per cent of 204 students rated themselves at 10 on the scale between insane and sane while only 1.5 per cent of the 204 students rated themselves at 0 on the scale between these two traits. It can easily be noted that about 10 per cent more prisoners (64.9 per cent) than students (54.4 per cent) rated themselves at the upper limit on the insane-sane item. These detailed tables are presented to give some conception of the spread of judgments in each group. The traits are arranged in the table according to the median for each pair of traits established for the students. The data in Tables 1 and 2 are summarized in Figure 1. It is interesting to note the sharp rise in the curve at the two extremes for the prison group.

In Table 3 the median, mean, and modal scale positions are presented for each pair of traits. It is interesting to note that the median scale value was slightly higher for the prisoners in 41 (82 per cent) of the 50 pairs of traits. The rank-order coefficient of correlation between the medians for the students and prisoners was $.687 \pm .054$. The mean scale value was higher for the prisoners in 36 (72 per cent) of the 50 pairs of traits. The mode for the prisoners fell at 10 in 44 (88 per cent) of the 50 pairs of traits, while the mode for the students fell at 10 in only 10 (20 per cent) of the 50 pairs of traits. These comparisons all show that the prisoners tend to rate themselves higher than the students in the traits considered.

Yoakum and Manson (8) have suggested that the relative desirability of traits might be determined by the degree of overestimation in self-ratings. Since the degree of overrating as judged by the medians does not vary greatly in any particular pair of traits, it seems impossible to judge the relative desirability of traits from this study. However, if the modes in the last two columns of Table 3 are considered it might be assumed that the traits of deliberation, unselfishness, calmness, modesty, and religiousness are desired most by the prisoners, since the modes for these traits fall much higher for the prisoners than for the students.

In order to compare one individual with another, as well as to make further group comparisons, it was found necessary to devise

TABLE 3
MEDIAN, MEAN, AND MODE FOR EACH PAIR OF TRAITS
(Self-rating of 204 college students and 271 prisoners)

Traits	Median		Mean		Mode	
	Stu- dents	Pris- oners	Stu- dents	Pris- oners	Stu- dents	Pris- oners
1. Insane—Sane	10.42	9.68	8.71	8.79	10	10
2. Diseased—Healthy	9.02	9.26	8.39	8.00	10	10
3. Untrustworthy—Trustworthy	8.96	9.35	8.51	8.69	10	10
4. Dishonest—Honest	8.85	8.21	8.55	7.19	10	10
5. Unambitious—Ambitious	8.85	9.56	8.31	9.50	10	10
6. Insincere—Sincere	8.59	9.19	8.32	7.98	10	10
7. Untruthful—Truthful	8.59	9.15	8.10	7.60	9	10
8. Discourteous—Courteous	8.55	8.78	8.00	7.79	9	10
9. Unfair—Fair	8.44	9.52	8.05	8.48	9	10
10. Disloyal—Loyal	8.44	9.29	7.78	8.12	10	10
11. Feeble—Vigorous	8.28	8.33	8.06	7.16	8	10
12. Unkind—Kind	8.25	9.44	8.06	8.79	8	10
13. Disobliging—Obliging	8.17	9.19	8.10	8.44	8	10
14. Unimaginative—Imaginative	8.15	7.08	7.65	6.01	9	10
15. Despondent—Hopeful	8.15	9.51	7.19	8.12	10	10
16. Unsympathetic—Sympathetic	8.04	9.40	7.55	8.35	8	10
17. Weak—Energetic	8.02	8.29	7.38	7.39	9	10
18. Lazy—Industrious	7.99	9.22	6.31	8.27	9	10
19. Evasive—Direct	7.97	8.49	7.28	7.29	9	10
20. Extravagant—Saving	7.97	7.50	6.50	7.03	9	10
21. Disrespectful—Respectful	7.94	9.43	7.61	7.89	10	10
22. Irrational—Rational	7.86	7.57	7.59	6.42	9	10
23. Unjust—Just	7.82	9.04	7.52	8.14	8	10
24. Negligent—Careful	7.79	9.29	8.04	8.97	8	10
25. Weak-willed—Strong-willed	7.77	8.89	7.46	7.76	8	10
26. Ignorant—Well-informed	7.77	8.00	7.38	7.37	8	8
27. Cowardly—Courageous	7.73	8.78	7.42	7.79	8	10
28. Unobserving—Observing	7.73	8.72	7.38	8.00	9	10
29. Unfriendly—Friendly	7.68	9.05	7.29	8.45	8	10
30. Revengeful—Forgiving	7.57	9.49	7.21	8.35	8	10
31. Wicked—Virtuous	7.56	7.53	7.09	6.91	10	10
32. Unintelligent—Intelligent	7.52	7.91	7.24	7.19	8	10
33. Dejected—Cheerful	7.50	7.70	7.07	7.01	8	10
34. Stupid—Shrewd	7.45	7.97	7.12	6.90	8	10
35. Unsystematic—Systematic	7.39	8.32	7.08	7.31	8	10
36. Secluded—Sociable	7.37	9.02	6.70	8.04	8	10
37. Rash—Cautious	7.30	8.11	7.00	7.16	8	10
38. Bad loser—Good loser	7.23	9.36	6.90	8.50	9	10
39. Unrepentant—Repentant	7.19	8.72	6.56	8.02	8	10
40. Discontented—Contented	7.16	5.52	6.60	5.11	8	5
41. Humble—Proud	7.02	5.65	6.61	6.13	8	5
42. Radical—Conservative	7.00	7.58	6.64	6.78	8	10
43. Impulsive—Deliberate	6.53	7.38	6.00	6.47	5	10
44. Dull—Witty	6.47	6.12	6.43	5.97	5	5
45. Selfish—Unselfish	6.45	8.97	6.52	8.08	5	10
46. Irritable—Calm	6.09	7.98	6.11	7.21	5	10
47. Vain—Modest	6.00	7.99	6.21	7.35	5	10
48. Doubter—Believer	5.23	7.41	4.97	6.63	6	8
49. Irreligious—Religious	5.14	6.54	4.95	5.38	7	10
50. Sentimental—Unsentimental	4.98	5.44	4.92	5.47	5	5

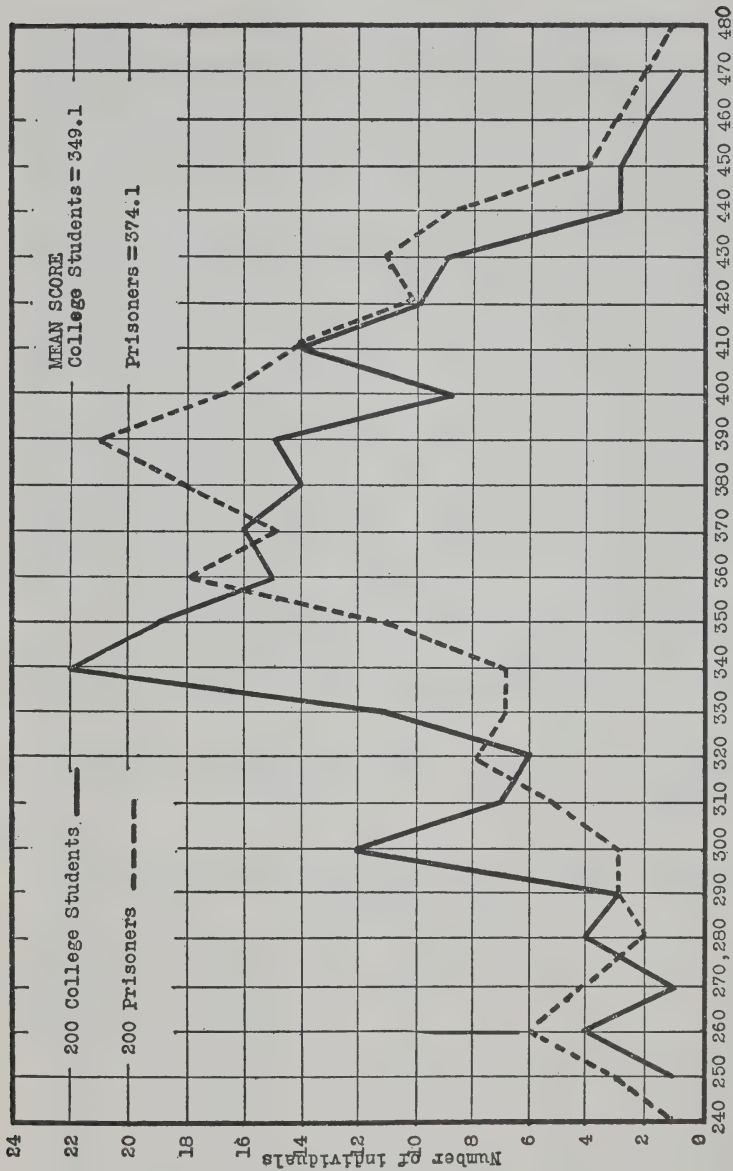


FIGURE 2

FREQUENCY OF SCORES

(The number of individuals making various total scores)

a method for deriving a comparable *total score* for each individual. The total score for each individual was secured simply by adding all canceled numbers together. For example, if an individual rated himself at 10 for all 50 pairs of traits his total score would be 500 (i.e., 50×10). If a person canceled all the fives his total score would be 250 (i.e., 50×5). The total scores might conceivably range from 0 to 500.

Total scores for prisoners and students are compared in Figure 2. For example, it will be noted that the solid line representing the students reaches its peak above 340 on the base line and opposite 22 on the ordinate axis. This means that 22 of the 200 college students considered in this table made a total score of 340 on the I. J. R. Trait-Rating Scale.

The central tendencies of the scores for both groups can be noted by observing the modes for each group in Figure 2. The modal score for the students falls at 340, while the modal score for the prisoners is 390. This shows that the total scores for the prisoners tend to be higher than those for the students. It should also be observed that the curve for the prisoners is negatively skewed while that of the students is positively skewed. The mean total score for the 200 college students was 349.1, while the mean score for the 200 prisoners was 374.1. This method of total-score comparison shows clearly that the prisoners rate themselves higher than the students.

Burglars and sex-offenders tend to rate themselves higher than those convicted for larceny or murder. This distinction is brought out nicely in Table 4.

TABLE 4
MEAN TOTAL SCORE MADE ON I. J. R. CLUSTER TRAIT-RATING SCALE BY
VARIOUS CRIME GROUPS
(210 prisoners)

Crime groups	Number of cases	Mean score	Standard deviation	Probable error of the mean
Larceny	30	357	26.3	3.2
Murder	22	370	22.1	3.2
Fraud	17	379	21.7	3.8
Robbery	92	380	41.0	2.9
Sex offenses	28	384	18.0	4.3
Burglary	21	387	19.2	2.9

The Pearson- r coefficient of correlation between total scores on the I. J. R. Cluster Trait-Rating Scale and scores on the Army Alpha Intelligence Examination is $.034 \pm .048$. This indicates that the I. J. R. scale is evidently not measuring intelligence as commonly defined.

At the outset of this study it was expected that the extreme ratings of prisoners (i.e., very high scores or very low scores) might possibly indicate some degree of maladjustment. If the commission of a criminal act is taken as a criterion of maladjustment, the comparison drawn between the students and prisoners in this study indicates that overrating is related to maladjustment. In order to test this hypothesis further a random sampling of 25 prisoners was selected from each of the three groups who made the lowest scores, average scores, and highest scores. Supplementary data which it was hoped might be used as criteria of maladjustment were secured by interviewing each individual in these three groups. Wassermann reactions, physical condition, previous arrests, previous convictions, use of alcohol, marital status, and violation of prison rules were all tabulated for each group.

No outstanding differences between the three groupings of prisoners could be found in terms of the frequency of appearance of the above seven items. For example, 5 individuals were found with a positive Wassermann reaction (4 plus) in the lowest group, while there were 3 individuals with positive reactions (4 plus) in the average group and also in the highest group. All three groups presented about the same frequencies of childhood diseases, operations, and injuries. It was found that the rate for prison violations was practically the same for all three groups. About the same percentage of temperate and intemperate drinkers of alcoholic beverages was found in each of the three groups. The past criminal records for all three groups involve practically the same number of arrests and previous convictions. In short, the three groups were about equally maladjusted as judged by the frequency of appearance of these seven criteria of maladjustment.

It should be noted that the method employed here involves a comparison within one group alone. In the first place the prisoners were compared with the students. That comparison showed merely that the prisoners overrated themselves. In the second step in the analysis an effort was made to seek evidence of maladjustment within

the prison group alone. This is almost tantamount in effect to seeking maladjustment within a maladjusted group. About the only conclusion that can be drawn from the comparison within the prison group alone is that no differences in degree of maladjustment can be detected between the prisoners who make high scores and the prisoners who make low scores.

If overrating is interpreted as an attempt to compensate for certain personality defects (Shen, 6), and if the attempt to compensate for personality defects is considered as evidence of maladjustment, then it might reasonably be assumed that the whole group of prisoners considered in this study is about uniformly maladjusted. If this sequence of reasoning is sound, one might conveniently turn to Figures 1 and 2 for graphic representations of the degree of maladjustment present in the prison group. Figure 2 shows that the judgments of the prison group consistently fall slightly above those of the student group with the exception of a few individuals who made very low scores as indicated by the dotted line at the ordinate end of the curve. Figure 1 shows that 37 per cent of all ratings made by the prison group fall at the upper extreme end of the rating scale. A comparison of the modes for prisoners and students in Table 3 shows that the modal ratings for prisoners in the majority of paired traits are above those of the students. These comparisons show that extreme ratings characterize the prison group. If, as suggested above, extreme ratings involve certain personality compensations, it seems evident that the I. J. R. scale might possibly be adapted for use in detecting maladjustment. However, considerable caution should be exercised in attempting to use total scores as evidence of maladjustment in individual cases. There is the possibility that overrating might indicate a weakness in critical faculty which would lead to periodic maladjustment even though the individual happened to be well adjusted at the time he overrated himself.

The term "maladjustment" is rather ambiguous in meaning. Self-judgment deals mainly with the critical aspect of intelligence, while maladjustment is generally used to indicate a lack of balance between man and his external environment.

In conclusion, the following facts are presented:

1. There is a tendency for penitentiary inmates to rate them-

selves higher than college students in the possession of generally desirable personality traits.

2. It is not possible to ascertain the relative desirability of personality traits by the degree of overestimation of self-ratings.

3. Burglars and sex-offenders tend to rate themselves higher in the possession of generally desirable personality traits than those convicted for larceny or murder.

4. If criminal activity is taken as a criterion of maladjustment it seems evident that overrating is related to maladjustment.

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Illinois State Reformatory
Pontiac, Illinois

L'ÉVALUATION DE SOI DES PRISONNIERS COMPARÉE À CELLE DES ÉTUDIANTS UNIVERSITAIRES

(Résumé)

Dans cette étude les évaluations de soi de 204 étudiants universitaires des deux sexes sont comparées aux évaluations de soi de 271 prisonniers mâles du Penitencier de l'Etat d'Illinois. On a demandé aux sujets de s'évaluer depuis nulle jusqu'à dix sur une échelle séparant cinquante paires de traits contraires. On a placé les traits désirables à la limite supérieure de l'échelle tandis qu'on a placé les traits non désirables à la limite inférieure de l'échelle, ou à nulle. On offre les conclusions suivantes:

(1) Les prisonniers tendent à s'évaluer à un point plus élevé que celui des étudiants à l'égard de la possession des traits de personnalité générale-

ment désirables. (2) Il n'est pas possible de découvrir la qualité relative des traits de personnalité d'être désirables par le degré de l'estimation exagérée des évaluations de soi. (3) Les cambrioleurs et les prisonniers qui ont commis des crimes sexuels tendent à se donner une plus haute évaluation à l'égard de la possession des traits de personnalité généralement désirables que ceux qui ont commis le larcin ou le meurtre. (4) Si l'on considère l'activité criminelle comme critère d'une mauvaise adaptation il semble évident que l'évaluation exagérée de soi a quelque rapport à l'adaptation.

SIMPSON

DIE SELBSTSCHÄTZUNG DER GEFANGENEN VERGlichen MIT DER DER COLLEGESTUDENTEN

(Referat)

In dieser Untersuchung werden die Selbstschätzungen von 204 gemischten Collegestudenten mit den Selbstschätzungen von 271 männlichen Insassen des staatlichen Zuchthauses in Illinois verglichen. Die Versuchspersonen wurden gebeten, sich selbst von Null bis zehn zu schätzen, nach einem Schema, das 50 Paar sich widersprechender Züge aussondert. Begehrte Züge wurden an die obere Grenze des Schemas gesetzt, während nicht wünschenswerte Züge an das untere oder Nullende des Schemas gestellt wurden. Man kommt zu den folgenden Schlüssen:

(1) Bei Zuchthausinsassen zeigt sich eine Tendenz, sich bezüglich der allgemein wünschenswerten Persönlichkeitszüge höher einzuschätzen als die Collegestudenten. (2) Es ist unmöglich die relativ Erwünschtheit der Persönlichkeitszüge durch den Grad der "Überschätzung in den Selbstschätzungen festzustellen. (3) Einbrecher und Geschlechtsverbrecher haben die Tendenz, sich im Besitz der allgemein wünschenswerten Persönlichkeitszüge höher zu schätzen, als diejenigen, die des Diebstahls oder Mordes übergeführt worden sind. (4) Wenn kriminale Tätigkeit als Kriterium schlechter Anpassung gehalten wird, scheint es offenbar, dass die Überschätzung mit schlechter Anpassung im Zusammenhang steht.

SIMPSON

SHORT ARTICLES AND NOTES

CHANGES IN ATTITUDE AS THE RESULT OF A LECTURE AND OF READING SIMILAR MATERIALS

BEN M. CHERRINGTON AND L. W. MILLER

The purpose of this study is two-fold: first, to compare the effect upon attitude of a lecture and of reading materials similar to the lecture, and, secondly, to determine the usefulness of the scale developed by D. D. Droba and L. L. Thurstone (1) entitled "Attitude Toward War," Forms A and B. Since the theory and method involved in the construction of these scales have been fully discussed by Thurstone (4) and by Droba (2), these will be given no consideration in this discussion.

TABLE 1

FREQUENCIES OF SCORES FOR FORMS A, B₁, AND B₂

Columns (2) and (3) show original lecture group, columns (4) and (5) show A and B₁ scores for those in B₂ lecture group.

(1) Scores	Lecture group			Reading group				
	(2) A	(3) B ₁	(4) A	(5) B ₁	(6) B ₂	(7) A	(8) B ₁	(9) B ₂
7.20—7.49	1	—	1	—	—	—	—	—
6.90—7.19	—	1	—	1	—	—	—	—
6.60—6.89	—	—	—	—	—	—	—	—
6.30—6.59	1	1	—	—	—	—	—	—
6.00—6.29	2	—	—	—	2	1	—	—
5.70—5.99	3	—	3	—	1	—	—	—
5.40—5.69	2	3	1	2	2	3	—	—
5.10—5.39	10	3	4	1	1	—	—	—
4.80—5.09	15	4	9	3	5	2	1	1
4.50—4.79	20	4	9	2	6	—	—	3
4.20—4.49	25	7	14	3	5	4	1	2
3.90—4.19	24	8	11	5	5	3	1	3
3.60—3.89	14	9	7	4	7	2	1	—
3.30—3.59	17	12	7	5	9	3	—	2
3.00—3.29	10	10	4	4	10	1	3	—
2.70—2.99	8	18	5	10	6	2	5	4
2.40—2.69	12	41	8	19	13	—	5	3
2.10—2.39	6	8	2	2	2	1	1	1
1.80—2.09	—	40	—	23	11	—	4	3
1.50—1.79	—	1	—	1	—	—	—	—
N	170	170	85	85	85	22	22	22
A. M.	4.05	2.98	4.06	2.99	3.60	4.14	2.89	3.35
S. D.	.94	.99	.96	1.05	1.08	.98	.77	.98

METHOD AND PROCEDURE

A group of 170 freshmen and sophomore college students in the University of Denver were given Form A of the Thurstone-Droba scale on a Friday during a regular class session. On the following Monday Mr. Kirby Page gave his nationally known lecture against war and in favor of pacifism. On Tuesday (approximately 24 hours after the lecture) these students were given Form B of the scale referred to above. Six months later Form B was mailed to the lecture group to determine what changes had occurred during this period.

The procedure with the reading group was similar to that just outlined for the lecture group. Form A was administered to 46 freshmen and sophomore students who had not heard the lecture and who agreed to participate in the experiment to the extent of reading a pamphlet by Sherwood Eddy and Kirby Page entitled "The Abolition of War" (3). After the pamphlet had been read, Form B of the scale was given at once and then repeated again after the six-month interval.

To determine the equivalence of the Forms A and B and their reliability a control group of 71 cases was employed. To this group Form A was given and followed by Form B.

The results which follow involve a consideration of the differences observed immediately and after six months for both the lecture and reading groups. A study of sex differences is also included.

RESULTS

Table 1 indicates the distribution of the scores for Form A and Form B for both the lecture and the reading groups. In the discussion which follows, B_1 will refer to Form B results within 24 hours after the lecture or after completing the reading, and B_2 will refer to Form B results six months later. The results for the lecture group ($N=85$) taking Forms A, B_1 , and B_2 are shown graphically in Figure 1.

A comparison of the A and B_1 distributions reveals a marked shift downward in B_1 scores. Eighty-five per cent of the B_1 scores are below the A average. (For all groups the means and medians do not diverge greatly.) The difference between the A and B_1 means is -1.07 . The

Diff.

$P. E._{diff.}^1$ is .104, and $\frac{\text{Diff.}}{P. E._{diff.}}$ is 10.28. Throughout this paper the expres-

¹Formula: $P. E._{diff.} = \sqrt{P. E._{av. 1}^2 + P. E._{av. 2}^2}$. The formula for

$P. E._{diff.}$ for correlated measures applies here. However, since the differences are found to be significant by the formula employed they would be even more so by the other. Unless otherwise indicated, this formula is the one employed.

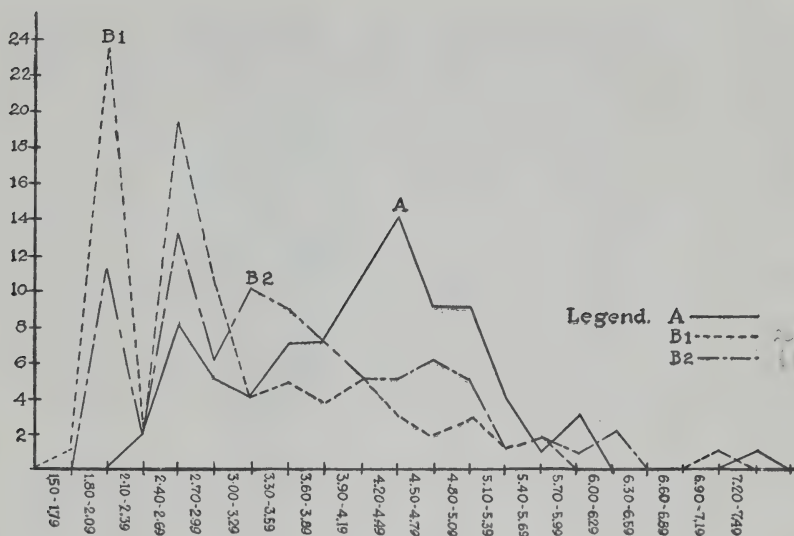


FIGURE 1

SHOWING SCORES FOR THE LECTURE GROUP ON FORMS A, B₁, AND B₂ FOR 85 SUBJECTS TAKING ALL THREE TESTS

sion, "a minus difference," means a shift toward pacifism and "a plus difference" a shift toward militarism. After six months but 85 of the original 170 could be reached. The A and B₁ results shown in columns (4) and (5) of Table 1 indicate that these 85 subjects answering B₂ are as a group essentially the same as those in the original group of 170. The averages and standard deviations vary but slightly from the larger group to the smaller group. The difference between the A and B₂ means

Diff.

is $-.46$. The $P.E._{diff.}$ is $.110$ and $\frac{-.46}{.110}$ is 4.18 . Thus a statistically sig-

$P.E._{diff.}$

nificant difference is shown between A and B₁ and between A and B₂. That a significant difference should be found after six months was wholly unexpected. The shift back toward the original A position as shown by the B₂ average is more than one-half of the difference found 24 hours after hearing the lecture.

The correlation between lecture scores on Form A and Form B₁ is $.49 \pm .05$ and between Form A scores and the differences between A and B₁ scores is $.38 \pm .06$. These indicate that the tendency to shift toward pacifism as a result of the lecture is not closely related to the original A

position. Of those above average on Form A over 60 per cent show a greater than average shift toward pacifism. Of those below the A average over 70 per cent show a less than average shift toward pacifism. Thus, although the correlations are low, it may be correctly stated that the greatest changes in attitude are more often found in those who were at the outset more militaristic than the average for this group. On the other hand, of the nine students who reacted negatively to the lecture, i. e., were more militaristic on B_1 than on A, eight were above the A average. These nine individuals who shifted toward militarism suggest the need for case studies to determine the factors operating.

The results for the control group ($N=71$) indicate that the two forms A and B are nearly equivalent. The averages (A.M.) are: Form A, 3.78; and Form B, 3.80. The standard deviations are .78 and 1.04, respectively, indicating that Form B shows somewhat greater variability. The correlation between Forms A and B for the control group is $.69 \pm .04$. This is lower than the correlation of .83 based on 400 cases reported by Droba (2).

In reporting the results for the reading group (Table 1) only those tested at all three times will be included. The difference between the means of Forms A and B_1 is -1.25 . The $P.E._{diff.}$ is .178 and $\frac{Diff.}{P.E._{diff.}}$ is 7.02.

The difference between the means of A and B_2 is $-.79$ with a $P.E._{diff.}$ of .156. (Computed by formula $P.E._{diff.} = .6745 \sqrt{\sigma_{av_1}^2 + \sigma_{av_2}^2 - 2r\sigma_{av_1}\sigma_{av_2}}$.)

The correlation between A and B_2 scores is .40. The $\frac{Diff.}{P.E._{diff.}}$ is 5.06.

The larger reading group ($N=46$) for which A and B_1 scores only are available gives the following results: A average 4.15 and S.D. 1.03; B_1 average 2.97 and S.D. .89. The difference is 1.18. The $P.E._{diff.}$ is .116 and

$\frac{Diff.}{P.E._{diff.}}$ is 10.18.

The lecture and reading groups on Form A are very similar as to the average scores and as to variability. The mean change from A to B_1 for the lecture group is -1.07 and for the reading group is -1.25 . Thus the reading group shifted more toward pacifism than the lecture group, the difference being .18, which is about 2 times its P.E. and therefore not statistically significant.

The lecture group taking both Form A and Form B_1 was made up of 72 men and 98 women. The lecture group available for B_2 consisted of 27 men and 58 women. The means and standard deviations for these groups are shown in Table 2. The results indicate that the men and

TABLE 2
 MEANS AND STANDARD DEVIATIONS FOR FORMS A, B₁, AND B₂ AND FOR THE DIFFERENCES A-B₁, AND B₁-B₂ FOR
 MEN AND WOMEN OF THE LECTURE GROUP

	A.M. A	S.D. A	A.M. B ₁	S.D. B ₁	A.M. B ₂	S.D. B ₂	A.M. A-B ₁	S.D. A-B ₁	A.M. B ₁ -B ₂	S.D. B ₁ -B ₂
Men N=72	4.01	.97	3.08	1.02	—	—	.97	.82	—	—
Women N=98	4.08	.91	2.91	1.01	—	—	1.18	1.02	—	—
Men N=27	—	—	2.96	.95	3.50	1.08	—	—	.54	.87
Women N=58	—	—	2.93	1.11	3.44	1.08	—	—	.55	1.04

women were nearly equal on Form A both as to the average position and as to variability. The difference between the means on Form A is .07 and between the standard deviations, .06. The mean of the men on B_1 is 3.08 and of the women is 2.91, with a difference of .17. These differences are less than one P.E. of the observed difference. Similarly the differences between the mean scores on B_2 are not significant.

CONCLUSIONS

1. Statistically significant differences are found as a result of both the lecture and the reading.
2. The differences obtained are slightly larger for the reading group than for the lecture group.
3. These differences persist and are significant after an interval of six months.
4. No significant sex differences are found.

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University of Denver
Denver, Colorado

A NOTE ON SOME ALLEGED CHARACTERISTICS OF INTROVERTS

ROSS STAGNER

It has often been claimed (2, 3) that the introvert, as contrasted with the extravert, is slower in movement and in decision, and more inhibited in expression of impulses. Laird's, Heidebreder's, and Neymann and Kohlstedt's tests of introversion-extraversion contain items of this kind, scoring the slow, deliberate, inhibited individual as introverted. Mohr and Gundlach (5) report that asthenics are somewhat faster on speeded writing, cancellation, and tests of reaction-time than are pyknics. These physical types are believed to correspond to the traditional introvert-extravert dichotomy in subjective orientation, but the evidence for identifying the two categories is not complete.

TABLE 1

		Mean	S. D.	Diff.	S. D. _{diff.}	C. R.
Cancellation	I	34.0	7.68			
	E	36.3	6.15	2.3	1.92	1.19
Normal writing	I	6.2	2.49			
	E	6.3	2.18	0.1	0.64	0.15
Accelerated writing	I	60.4	9.30			
	E	57.5	6.48	2.9	2.19	1.32
Speed of decision	I	4.7	2.73			
	E	4.6	2.79	0.1	0.74	0.13
Motor inhibition	I	6.1	2.24			
	E	5.2	2.59	1.1	0.63	1.74
Coordination	I	5.0	2.89			
	E	6.0	2.93	1.0	0.77	1.29
Ratings:						
Movement	I	6.7	1.38			
	E	6.6	1.57	0.1	0.39	0.25
Decision	I	5.8	2.30			
	E	6.2	1.67	0.4	0.58	0.68
Inhibition	I	6.5	1.71			
	E	6.1	1.78	0.4	0.48	0.83
Coordination	I	6.2	1.70			
	E	5.7	1.31	0.5	0.44	1.13
Height-weight ratio	I	493.0	40.2			
	E	465.0	45.6	28.0	13.5	2.07

It seemed desirable, therefore, to test experimentally the existence of these alleged differences. The most important problem, then, was to obtain a group of unquestionable introverts and a similar group of extraverts. Current tests of this personality dimension agree only to the extent of about .37 correlation, so we decided to employ both the Neymann-Kohlstedt and the Laird tests. In a group of 175 college students, these correlated .39 (6).

We then selected only those scoring definitely introverted on both tests for our introvert group. Twenty-two cases were found who scored below 0 on the N-K test and above 19 on the Laird. Thirty-seven extraverts were selected, scoring above +8 on the N-K and below 15 on inventory C2.

On these individuals the following measures were collected: speed in cancelling geometrical forms (Whipple's test); measures of speed of decision, writing, coordination, and inhibition from the Downey Will-Temperament Test; ratings on the same traits by the subjects; and the person's height and weight, as reported by himself.

The results are given in Table 1. Scores on normal writing, decision, inhibition, and coordination are the scores obtained from Downey's table

of norms. On accelerated writing, the figures represent the actual number of letters written. The ratings were on a ten-point scale to correspond to the Downey scores, and the instructions corresponded as closely as possible to the descriptions of the traits tested (1).

It is clear from this table that most of the alleged differences are far too small to bear much emphasis. On cancellation and normal writing the extraverts are faster, but on accelerated writing the introverts are favored. Introverts rate themselves slower on decision and higher on coordination, and the test gives opposite results.

The claims of Kretschmer with reference to the correlation of physical structure and personality type (4) are here substantiated better than any of the claims with reference to speed of response. While the critical ratio is too small for perfect reliability, such a difference will occur by chance only about once in 50 trials.

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*University of Wisconsin
Madison, Wisconsin*

ATTITUDES OF PARENTS, STUDENTS, AND MENTAL HYGIENISTS TOWARD CHILDREN'S BEHAVIOR¹

RALPH M. STODDILL

The purpose of this paper is to investigate the popular assumption that college students are more enlightened, or at least more liberal, in their attitudes toward children than their elders are. To carry out this investigation,² an attitude scale was administered (1) to a group of 110 parents,

¹Read at the American Psychological Association meeting at Ithaca, N. Y., September, 1932.

²This investigation has been conducted under the direction of Dr. Henry H. Goddard, Head of the Department of Abnormal and Clinical Psychology, Ohio State University.

(2) to 45 advanced college students in a class in psychology, and (3) to 50 well-recognized authorities in child guidance and mental hygiene.

The attitude scale consisted of a list of 70 items of child behavior, each to be rated from 1 to 10 according to the degree of seriousness or undesirability of the given item of behavior. Items rated 1 (the low end of the scale) were considered of little or no consequence, while items rated 10 (the high end of the scale) were considered very serious or undesirable.

The mean scale value was computed on each item for each of the three groups of subjects. Parents, students, and mental hygienists are agreed on the seriousness of 29 of the 70 items.³ Parents and students agree on 65 of the 70 items, while students and mental hygienists agree on 38 items. Parents and mental hygienists agree on 29 items. There are thus only 5 items which distinguish significantly between parents and students. (These are *playing with fire*, *swearing*, *smoking*, *bashfulness*, and *spending most of time reading*.) There are 32 items which distinguish significantly between students and mental hygienists, and 41 items which distinguish significantly between parents and mental hygienists. Items are regarded as statistically significant when a critical ratio of 3.0, or larger, is obtained.

The items which mental hygienists consider significantly more serious than either parents or students consider them are shown in Table 1.

TABLE 1
ITEMS CONSIDERED SIGNIFICANTLY MORE SERIOUS BY MENTAL HYGIENISTS
THAN BY PARENTS OR STUDENTS

	Mean scale values		
	Parents	Students	Mental hygienists
Fears	6.8	6.3	7.9
Suspiciousness	6.1	6.3	7.6
Excessive modesty	5.0	5.0	6.8
Shyness	4.0	4.5	5.5
Day-dreaming	3.7	3.8	5.4
Spends most of time reading	3.7	2.5	4.6

These items, which mental hygienists regard as significantly more serious than either parents or students do, are items which, in general, characterize introvert behavior and which are recognized by students of child behavior as very probable symptoms of personal maladjustment. As compared with mental hygienists, parents and students believe such behavior to be of little consequence.

When we turn to the items (in Table 2) which both parents and students

³For a complete list of the 70 items, as rated by parents and mental hygienists, see Stogdill (1).

TABLE 2

ITEMS CONSIDERED SIGNIFICANTLY MORE SERIOUS BY PARENTS AND STUDENTS
THAN BY MENTAL HYGIENISTS

	Mean scale values		
	Parents	Students	Mental hygienists
Stealing	9.0	9.5	7.5
Masturbation	9.0	8.9	5.5
Lying	8.8	8.8	7.1
Cheating	8.8	8.9	7.4
Disobedience	8.6	8.2	6.0
Obscene talk	8.5	8.4	6.0
Playing with fire	8.4	6.8	5.2
Swearing	8.3	7.0	4.8
Smoking	8.2	6.8	4.9
Sex experience	7.8	7.6	6.0
Destructiveness	7.6	7.0	6.3
Talking back	7.6	7.0	5.0
Disrespect for elders	7.4	7.3	4.3
Unresponsive to parental love	7.3	6.4	5.3
Criticizing parents	7.1	6.8	4.4
Rudeness	7.0	6.6	5.1
Ungratefulness	6.9	6.8	4.9
Contradicts his elders	6.9	6.5	4.0
Argues when corrected	6.6	6.5	4.4
Carelessness	6.6	6.2	5.1
Impoliteness	6.5	6.4	4.6
Interrupting adult conversation	6.3	5.7	3.8
Careless of appearance	6.2	6.6	4.3
Bad table manners	6.1	5.3	3.8
Forgetfulness	5.9	5.6	4.1
Fighting	5.8	5.4	3.9

regard as significantly more serious than mental hygienists do we observe a striking difference.

Parents and students consider the most undesirable forms of child behavior, as studied by this scale, to be (1) *violations of the moral taboos* (such as stealing, lying, and sex experience), and (2) *opposition to parental control* (such as talking back, disrespect for elders, and criticizing parents), and (3) *interruptions of household routine* (such as carelessness and bad table manners). Parents and students, then, hold it most undesirable for a child to deviate from the group standards of conduct. Symptoms of personal maladjustment are believed to be of little consequence. Mental hygienists, in comparison, are considerably less concerned as to whether the child conducts himself so as to be of greatest convenience and the

least possible bother to parents and the community. The seriousness of antisocial behavior, however, is by no means disregarded. Mental hygienists merely insist on the desirability of greater initiative and wider social participation on the part of the child than parents find convenient. The child's opposition to undue restriction of these activities is therefore regarded as of less consequence by mental hygienists than by parents. Students probably rate as they do because they have received their training in parental attitudes from parents rather than from mental hygienists.

The fundamental difference between mental hygienists and the parent-student group is very clearly revealed when correlations are computed. When the 70 items are ranked in order from most serious to least serious for each group, the following rank-order correlations are obtained:

<i>Mental hygienists with parents</i>	+ .45
<i>Mental hygienists with students</i>	+ .58
<i>Parents with students</i>	+ .94

Students tend to rate slightly more liberally than parents do, but not significantly so. It appears that the students who took part in this study have encountered very little in the university which contributes toward their acquiring a more enlightened attitude toward children than that revealed by the older generation.

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The Ohio State University
Columbus, Ohio

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It is far easier to be laudatory than to be specific about this amazingly solid and scholarly general introduction. There seems to be nothing the matter with it whatever; in a fairly careful reading I could detect, even in the comparatively secondary typographical realm, but one slight error. That I learned a great deal of interesting and fundamental material is perhaps not so great a tribute as it feels, since I am not a linguist.

The work is a revision of an earlier and smaller one (1914); the author notes that he has changed the psychological basis from that of Wundt to a mechanistic one (I should call it behavioristic, except that it has not been easy, apparently, completely to behaviorize the semantic aspects of the subject), and the linguistic reactions are regarded as a sort of long-circuiting of the familiar S-R bond so that S may impinge upon more individuals; this leads to the possibility of bringing into play more individuals, and more specialized individuals, to perform the appropriate R, with tremendously increased power for each individual and the group and in consequence correspondingly increased survival value.

The author's robust but unconventional common sense in the treatment of a number of matters was a source of great joy to me. The one most obvious to intelligent as against educated people is that of "correctness" in speech; were it not for our school-marms of both sexes getting the matter all tied up with God and the Star-Spangled Banner, it would be self-evident that speech, like skin color or cephalic index, is subject to individual differences naturalistically determined, and that laughing at an *ain't* is about as sensible as laughing at a rhinoceros or mourning that trees don't grow with their roots up; it is a real pleasure to see Bloomfield expound the obvious in this respect with the authority of thoroughgoing familiarity, but without ridicule or bitterness. Another matter is not far from equally axiomatic when it is pointed out, but apparently it has not been pointed out often enough to keep a large number of linguists themselves out of the quicksands; it is that the phonemes of different languages are different, and accordingly it is idle to suppose that a universal system of representation can be constructed which at the same time does justice to the sounds; thus the three-vowel system of Tagalog or the soft stops of the Algonquian languages are really incommensurable with English, since the range of produced sounds recognizable as a given phoneme by a native speaker overlaps two or more phonemes in our language.

The exposition of phonemes, a very fundamental matter, seemed unusually lucid; nevertheless I shall have to soak in it a little further, since it is not wholly clear how by the experimental method described (comparison of a large number of words) it can be determined (in Chicago English) that *bee* is a compound phoneme, while *gem* (*dyem*?) is simple; also by what method the compound phonemes are limited to eight, and these particular eight—*few* (*fyuw*) does indeed seem to be a group of phonemes having a certain "linkage," but so do *-tion* and *-ble*. The other *-emes* (*tagm-*, *tax-*, *sem-*, *episem-*, *morph-*, etc.) seem also to lack some of the operational clearness of the phonemes.

Particularly intriguing from my own personal viewpoint were the discussions of semantic change, dialect geography, borrowing, and the evolutionary processes in general—including the badly disappointing but realistic information that the causes of sound shift are unknown and its directions, so far, unreconciled. An esthetic thrill is also inherent in the contemplation of a master of almost anything (Bloomfield reminds me of Sigmund Spaeth deriving "Yes, We Have No Bananas" from—among other things—the Hallelujah Chorus) engaged in the practice of his art and mystery; it is well worth the price of the book, for example, to behold a man who will expound for you the relationships between the Cree, Fox, and Menomini words for *kettle*, illustrate the loss of terminal consonants by showing that the Fiji *inu* is the same word as Tagalog *inum*, cite *Oh, yeah?* as a good example of a certain secondary phoneme, show that the logical *gat* could not appear—and did not—in southwest France for *chicken* because it conflicted with Spanish-derived *gat* for *cat*, indicate that *whore*, being cognate with *carus*, must be an uglified euphemism for an earlier ugly word now lost, and predict the substitution in America of *rooster* and *donkey* for their literary predecessors by reason of the persistent tender-mindedness of most of us in the face of adolescent association-chains.

RAYMOND ROYCE WILLOUGHBY

Clark University
Worcester, Massachusetts

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